THE CHEMIST AND DRUGGIST

Editorial Notes.

THE Annual Meeting of the British Pharmaceutical Conference will be opened at the ancient city of Norwich, on Tuesday the 18th of August, with Mr. DANIEL HANBURY, F.R.S., as President. An unusually large number of papers are proposed; and our Norwich friends purpose holding a small and select exhibition of objects connected with Pharmacy.

WE notify the conclusion of the splendid work upon which Mr. HENRY WATTS, F.R.S., has been so long engaged. The fifth and last volume of the *Dictionary of Chemistry* has been completed, and we can now form an adequate conception of the vast extent of the region of fact and theory that has been so minutely surveyed by the industrious and learned editor. The complete work comprises more than five thousand large pages of closely printed matter, and has been well described by a contemporary as "a truly magnificent work, almost German in the cyclopædic comprehensiveness of its science, and thoroughly English in its practical usefulness." Between the first and last articles, "Abichite" and "Zymurgy," every chemical substance now known is described, generally with great fulness, and always with ample reference to the original sources of information. Mineralogy, crystallography, and all those branches of physics which are connected with chemistry, come within the scope of the work. Though the editor has written the greater part of the dictionary, he has enjoyed the assistance of twenty-one eminent scientific men, who have contributed articles of great interest and utility. The essays on subjects connected with chemical theory by Dr. ODLING and Prof. G. C. FOSTER; the articles on the practical applications of chemistry by Dr. PAUL; those on subjects connected with physiology by Dr. MICHAEL FOSTER; and the various contributions by Dr. FRANKLAND, Dr. WILLIAMSON, Dr. HOFMANN, and other great chemists, on subjects which they have made their own, have greatly enriched the work. We sincerely hope that the success of this incomparable scientific production may be commensurate with the expectations of the enterprising publishers, and that they may be encouraged to issue occasional supplements, in which additions to chemical science may be noticed. Mr. WATTS's *Dictionary* is an admirable foundation for a yearly abstract of chemical science, and the want of such an annual is keenly felt by English chemists.

The patent under which Mr. BETTS has maintained his right to the exclusive manufacture of the metallic capsules, which have been so unpleasantly associated with his name in the minds of certain chemists, expired in January last.

THOUGH DR. JOHNSON spitefully associated the practice of punning with petty larceny, we hold that it is quite consistent with the strictest morality, and could, if we chose, publish the name of a distinguished pharmaceutist, with unassailable ethics, who delights his friends by dispensing the English language in forms not prescribed in any dictionary. We therefore make no apology for printing the following extract from the American *Druggists' Circular:*

"At the meeting of the American Pharmaceutical Association, held in New York last September, R. J. Browne, Esq., of Kansas, invited the Association to meet at Leavenworth the next year, and offered as inducements its *central* location, and an opportunity of enjoying a buffalo hunt or an Indian scalping party. The association, however, voted to meet in Philadelphia, and our Kansas friend, not being able to extend these hospitalities to the association, sent to one of his eastern friends a goodly piece of buffalo meat, and elicited the following acknowledgment:—

"'FRIEND BROWN,

"'I received your *kind* note by *male* and your *kine* package by express, safely and in good order. It was very acceptable, and I at first thought it was *bully* for you to send it; but, on eating it, found it quite *tender*. I then thought it was *deer*, but as there was no expense attending it I could not call it *dear*, and then concluded it was *sheep*. It served for breakfasts for several of my epicure and invalid neighbours and friends, and the *praise* of it was in *all their mouths*, and my directions to them for cooking it were to have it done *Brown*, and as it came from *Kansas*, they should use a *can of sarse*, to go with it. I told them that you shot it *from* the front door of your store, and I suppose it was some way *from* it. Hoping we shall meet at *Philadelphia* next fall, and renew the assurances of 'brotherly love,'

"'I am, yours truly,

* * *

"'Pharmacian.'"

We regret that some of the puns in this letter involve Americanisms with which we are unacquainted, but enough intelligible fun remains to show the "excellent fooling" of the writer.

THE evidence of Dr. ODLING, at the trial of the Fenian prisoners ~~on the~~ 23rd ult., brought to light a novel and costly method of secret writing. He deposed that he examined the contents of a glass bulb handed to him by the inspector. It was entirely closed by being blown round. He broke the bulb and ascertained that it contained chloride of gold. If this was dissolved in water and used as ink, the writing would be invisible, but it could be reproduced by several processes, and copperas would bring it out immediately. (The witness produced a piece of paper on which the experiment had been made.) The characters were not absolutely invisible if examined carefully, but they could not be read, although it would be seen that the surface of the paper had been disturbed, and under ordinary circumstances the writing would remain unreadable for several hours. The witness then proved that the substance handed to him by the warder of the House of Detention consisted of sulphate of iron or green copperas. Chloride of gold was used for the purposes of photography, but he could not say whether it was generally known that it could be made use of for the purpose of invisible writing. The inspector had previously deposed that he found the glass bulb upon the person of the prisoner BURKE; and the warder, that he found three or four lumps of the green substance in a stocking brought to the prisoner in a parcel of clean clothing.

FROM the following circulars, we conclude that the atmosphere of Bow is not favourable to the healthy growth of pharmacy and medicine:—

"Messrs. Garman Brothers have opened a retail, dispensing, and prescribing business in Roman-road, at the corner of Stafford-road.

"Being wholesale druggists as well, they are enabled to offer unusual advantages in price, and to guarantee a perfect purity in the chemicals and medicinal preparations which are manufactured on the premises.

"Mr. C. E. Garman, sen., will be in attendance, and will give gratuitous advice, morning and evening, thus the dangerous custom of chance dosing by so-called 'chemists and druggists' can be avoided; the experience of a medical man of forty years' practice in the neighbourhood being within the reach of all, even of those with whom economy is of the greatest moment."

"Old Ford Dispensary for the Diseases of Women and Children, Roman-road (three doors east of the Chapel), J. Batteson, surgeon. Advice and medicine, one shilling per week, during attendance at the Dispensary; patients to bring their own bottles. Hours—every afternoon (except Sunday) from 3 to 5 o'clock. Midwifery, 10s. 6d.; teeth extracted (from 3 to 5 o'clock), 6d.; powders for Children (each), 1d. Vacciuation gratis, every morning from 9 to 11 o'clock."

THE article on Absinthe, which we have reprinted from the *Pall Mall Gazette*, has been thus commented upon by the *Lancet*:—

"For our own part, we have never been convinced that there is anything in the symptoms of acute or chronic *absinthism*, as they are described, essentially different from those of acute or chronic *alcoholism*, which has been produced by the imbibition of innumerable drams of any spirit. We have repeatedly seen the whole train of symptoms, which are now so much talked of, produced by the constant drinking of brandy or rum. As for hallucinations, there is nothing more common. At any rate, it will take a good deal of very solid and precise evidence to convince us that the trifling amount of essence of wormwood contained in the liquor called absinthe, adds any considerable poisonous power to the natural influence of some twenty or thirty ounces per diem of a highly concentrated alcohol, which is what many of these Parisian *buveurs* actually dispose of in the course of innumerable visits to the *cafés* and other houses of refreshment."

The *Lancet's* doubts respecting the special poisonous effects attributed to wormwood have induced a correspondent of the *Pall Mall Gazette* to publish the following extract from Pereira's *Elements of Materia Medica*:—

"Artemisia Absinthium (common wormwood).—Physiological effects: *In moderate doses*, it produces the ordinary effects of the *aromatic bitter tonics*. Its bitter principle becomes absorbed; hence the flesh and milk of animals fed with it are rendered bitter. Borrich says that the milk rendered bitter by it proves noxious to the infant. *Large doses* irritate the stomach, and excite the vascular system. A specific influence over the nervous system, characterized by headache, giddiness, etc., has been ascribed to it. This has usually been supposed to depend on the volatile oil, but a similar power has been assigned to the bitter principle. (See Lindestople in Murray App. Med., and Kraus, Heilmittell, p. 422.)"

It would seem, therefore, on reference to this standard work, first published thirty years ago, that the idea of wormwood, the basis of absinthe, being very deleterious in *large doses* (for Pereira puts the words in italics) is no novelty; and it would also seem, as it is absorbed into the system, that the continuous use of it in large doses would be productive, ultimately, of the effects described in the article, quite apart from the alcohol.

WE regret that a further postponement of our report on the various classes connected with the drug trade is unavoidable.

ABSINTHE.*

THE indulgence in absinthe which already prevails to a great extent among all classes of Frenchmen threatens to become as widespread in France and as injurious there as opium eating in China. If a visitor to Paris strolls along the boulevards from the Madeleine to the Bastile some summer's afternoon, between five and six o'clock—which is commonly called "the hour of absinthe"—he can hardly fail to remark hundreds of Parisians seated outside the various cafés or lounging at the counters of the wine shops and imbibing this insidious stimulant. At particular cafés—the Café de Bade for example—out of fifty idlers seated at the little round tables, forty-five will be found thus engaged. But it is not on the boulevards alone that absinthe is the special five o'clock beverage. In most of the wine shops in the faubourgs, in the "Quartier Latin," and round about the Ecole Militaire, you may see at that particular hour workmen, students, soldiers, clerks, charbonniers, chiffonniers even, mixing their customary draughts of emerald-tinted poison, and watching the fantastic movements of the fluid as it sinks to the bottom of the glass; wherein it turns from green to an almost milky white, at the moment when the perfumes of the various aromatic plants from which it is distilled disengage themselves.

A quarter of a century ago absinthe was the drink of French coachmen, grooms, and footmen, and people of the lowest class; to-day its most ardent lovers are to be found among educated and well-to-do Parisians. Literary men, professors, artists, actors, musicians, financiers, speculators, shopkeepers, even women, yield themselves up to its seductive influence—to those undefinable provocations which seem, they say, to impart renewed activity to an enfeebled brain, developing a world of new ideas, and which thus, it is believed, have inspired many a noble work of imagination in literature and art. It may be so; but then those who habitually excite the brain with absinthe soon discover that they can produce positively nothing without its aid, and that a time arrives when heavy stupor supersedes that excitement of the intellectual faculties which once seemed so easy and so harmless.

After the first draught of this poison, which Dr. Legrand, who has studied its effects, pronounces to be one of the greatest scourges of our time, you seem to lose your feet, and you mount to a boundless realm without horizon. You probably imagine that you are going in the direction of the infinite, whereas you are simply drifting into the incoherent. Absinthe affects the brain unlike any other stimulant; it produces neither the heavy drunkenness of beer, the furious inebriation of brandy, nor the exhilarent intoxication of wine. It is an ignoble poison, destroying life not until it has more or less brutalized its votaries, and made drivelling idiots of them.

There are two classes of absinthe drinkers. The one, after becoming accustomed to it for a short time, takes to imbibing it in considerable quantities, when all of a sudden delirium declares itself. The other is more regular, and at the same time more moderate in its libations; but upon them the effects, though necessarily more gradual, are none the less sure. Absinthe drinkers of the former class are usually noisy and aggressive during the period of intoxication, which, moreover, lasts much longer than drunkenness produced by spirits or wine, and is followed by extreme depression and a sensation of fatigue which is not to be got rid of. After a while the digestive organs become deranged, the appetite continues to diminish until it is altogether lost, and an intense thirst supplies its place. Now ensues a constant feeling of uneasiness, a painful anxiety, accompanied by sensations of giddiness and tinglings in the ears; and as the day declines, hallucinations of sight and hearing begin. A desire of seclusion from friends and acquaintances takes possession of the sufferer, on whose countenance strong marks of disquietude may be seen; his mind is oppressed by a settled melancholy, and his brain affected by a sort of sluggishness which indicates approaching idiocy. During its more active moments he is continually seeing either some imaginary persecutor from whom he is anxious to escape, or the fancied denunciator of some crime he dreams he has committed. From these phantoms he flies to hide himself, or advances passionately towards them protesting his innocence. At this stage the result is certain, and dissolution is rarely delayed very long.

The symptom that first causes disquiet to the habitual absinthe drinker is a peculiar affection of the muscles, commencing with fitful contractions of the lips and muscles of the face and tremblings in the arms, hands, and legs. These are presently accompanied by tinglings, numbness, and a distinct loss of physical power; the hair falls off, the countenance becomes wan and sad-looking, the body thin, the skin wrinkled and of a yellowish tinge—everything, in short, indicates marked decline. Simultaneously with all this, lesion of the brain takes place; sleep becomes more and more disturbed by dreams, nightmares, and sudden wakings; ordinary illusions, succeeded by giddiness and headaches, eventually give place to painful hallucinations, to delirium in its most depressing form, hypochondria, and marked impediment of speech. In the end come entire loss of intellect, general paralysis, and death.

---

* From the *Pall Mall Gazette*, May 2.

There are two kinds of absinthe consumed in Paris, the common and the Swiss absinthe, the latter of which possesses almost double the intoxicating properties of the former. A few years ago the consumption of the common absinthe was three times that of the Swiss; but now the proportions are reversed, and four times as much Swiss absinthe is drunk as of the common quality. According to official statistics, France receives from Switzerland nearly 2,000,000 gallons of the noxious compound annually; in addition to which an enormous quantity made in Paris is sold as the veritable Swiss production.

Genuine absinthe is distilled from the leaves of major and minor absinthe, angelica roots, calamus aromaticus, aniseed, dittany leaves, and wild marjoram, all of which have been previously bruised and soaked for a period of eight days in alcohol. A quantity of oil of aniseed is then added, and the whole is carefully mixed together. Occasionally fennel, mint, etc., enter into the composition. The utmost care is taken to obtain the right shade of colour, and to ensure the liquid expanding and whitening well when mixed with water. Should it prove to be deficient in these qualities the manufacturer does not hesitate to add indigo, hyssop, nettles, and even to have recourse to sulphate of copper to obtain the precise tint of green, or chloride of antimony to produce the milky white precipitate, both of these chemicals being deadly poisons.

Paris actually has its clubs of absinthe drinkers, the members of which are pledged to intoxicate themselves with no other stimulant, and even to drink no other fluid—the only pledges, it is believed, which they do not violate. They assemble daily at some appointed place of rendezvous at a certain hour, and proceed to dissipate their energies and their centimes in draughts of that fatal poison which fills the public and private madhouses of Paris. Those absinthe-drinking clubs are certainly not numerous, but liquor shops abound in all quarters of the city where absinthe may be said to be the staple drink; and lately several have sprung up which, to attract the youth of Paris to them, dispense the insidious beverage at the hands of pretty women.

In the French army drinking absinthe of the cheapest quality, and as a matter of course the most deleterious of all, used to prevail to such an extent that both military and medical commissions were appointed to report upon the practice and the effects resulting from it. The facts that came to light were so alarming that the Government not only formally interdicted its consumption, but made every endeavour to keep it beyond the reach of the soldiers. In Paris and other garrison towns these efforts were not particularly successful; but it fared hard with any camp followers of expeditionary corps in Algeria, or at Chalons or other parts of France where temporary camps were formed, who chanced to be detected in supplying absinthe to the troops. In the French navy its consumption is rigidly prohibited, not merely to the common seamen, but to the officers as well.

AN OPIUM DEN IN WHITECHAPEL.

A FRENCH journalist, M. Albert Wolff, is recounting in the pages of *Figaro*, his experiences of a night in London spent in the company of an intelligent officer of the Detective Police. We bring before our readers one of the strange scenes which he has painted, without vouching for the truth of his vivid colouring:—

We stopped before one of these hovels; the police officer pushed open the door, which was ajar.

"Who's there?" demanded some one inside.

"Don't be frightened, Jack; it's only me!" replied our Hercules. Whereupon we enter a small room; a strange, nauseous odour pervades the apartment, and we quickly beat a retreat.

"Wait awhile," says the policeman; "it's only opium."

By the flickering light of the fire burning in the grate I perceive the individual addressed as Jack. It is a Chinese who keeps this wretched hole where one can get intoxicated for a few coppers. The room we enter is so low that we are unable to stand upright. Lying pell-mell on a mattress placed on the ground are Chinamen, Lascars, and a few English blackguards who have imbibed a taste for opium. Some stretched at full length abandon themselves to the fumes of intoxication in its different stages, while others are only just commencing to light their pipes at a kind of night lamp which is placed by the side of each smoker.

Jack, the master of the house, jabbers a little English. He inquires of us if we wish to smoke, and points to some pipes, which have been already in a thousand courteous mouths, and which he will be happy to offer us, lying on a table between a pile of potatoes and a few bits of charcoal. The police officer explains to this devil's tapster that we have come simply to look on.

"Is there no one upstairs?" inquires he.

"Yes, there is one woman."

"Whereabouts is upstairs?" asked I, looking around. "Why, there is no staircase.

Jack fetches a little ladder from the yard and places it against the wall, where some cats' and rats' skins are hanging; he mounts a few steps, and pointing to a hole in the ceiling, says, "Here."

"There is not room for all of us up there," remarks the police officer. "You follow the Chinaman, and I'll wait for you below."

One by one we climb the ladder and mount through the opening. Seated on a mattress in a room lighted by a dim lamp is an old woman with dishevelled white hair, thin face, and dull-looking eyes, blowing a cloud of smoke and coughing every now and then like a person in the last stage of consumption. She casts a stupefied gaze upon us, then throws herself back and continues to puff away at her pipe of opium.

The room where she is is a small loft, encumbered with a multitude of objects, belonging to the excellent Jack, but beyond the mattress on which the old sorceress is reclining there is not a single piece of furniture. The atmosphere is so tainted with opium that, being on the point of suffocation, I break the only window pane, through which, by the way, a kitten would find some difficulty in passing. The fresh air inundates the room, rousing up the sorceress, who gives vent to a volley of complaints in an unintelligible jargon. A shilling flung on the unclean couch mollifies the old woman, who opens her eyes to their full extent by a superhuman effort. She seizes the coin with her long bony fingers, and contemplates it with delight. A new attack of coughing, more formidable than the former, seems to tear her lungs as we retreat through the little hole and down the ladder steps.

PETROLEUM ACT AMENDMENT BILL.[*]

A BILL to amend the Act Twenty-fifth and Twenty-sixth Victoria, Chapter Sixty-six, for the safe keeping of Petroleum.

Whereas it is expedient to make further Provision for the safe keeping of Petroleum and other Substances of like Nature:

Be it enacted by the Queen's most Excellent Majesty, by and with the Advice and Consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the Authority of the same, as follows:—

1. This Act may be cited for all Purposes as "The Petroleum Act, 1868."

2. This Act, so far as is consistent with the tenor thereof, shall be read as One with the Act of the Session holden in the Twenty-fifth and Twenty-sixth Years of the Reign of Her present Majesty, Chapter Sixty-six, intituled "An Act for the safe keeping of Petroleum," and the said Act may be cited for all Purposes as "The Petroleum Act, 1862," and this Act and the said Act may be cited together as "The Petroleum Acts, 1862, 1868."

---

[*] Introduced by Sir J. Fergusson and read a first time in the House of Commons on the 23rd ult.

3. For the Purposes of the Petroleum Acts, 1862, 1868, "Petroleum" shall include all such Rock Oil, Rangoon Oil, Burmah Oil, or Product of Petroleum, Coal, Schist, Shale, Peat, or other Bituminous Substance as gives off an inflammable Vapour at a Temperature of less than *One hundred and ten* Degrees of Fahrenheit's Thermometer.

4. From and after the *First Day of October, One thousand eight hundred and sixty-eight,* the Third Section of the Petroleum Act, 1862, shall be repealed; provided that such Repeal shall not affect any liability or penalty incurred in respect of any offence committed before the passing of this Act, or any legal Remedy for enforcing or recovering such Liability or Penalty.

From and after the *First Day of October, one thousand eight hundred and sixty-eight,* no Petroleum shall be kept within *Fifty* Yards of a Dwelling House or of a Building in which Goods are stored, except in pursuance of a Licence given in accordance with the Petroleum Act, 1862.

There may be annexed to any such Licence such Conditions as to the Mode of Storage, as to the Nature of the Goods with which Petroleum may be stored, as to the testing such Petroleum from Time to Time, and, generally, as to the safe keeping of Petroleum, as may seem expedient to the Local Authority.

Any Petroleum kept in contravention of this Section shall be forfeited, and in addition thereto the Occupier of the Place in which such Petroleum is kept shall be liable to a Penalty not exceeding *Twenty Pounds* a Day for each Day during which Petroleum is kept in contravention of the Petroleum Acts, 1862 and 1868, or either of such Acts.

5. No Person shall sell or expose for Sale for the Purpose of being used in Lamps, or otherwise for the Production of artificial Light, any Description of Petroleum which gives off an inflammable Vapour at a temperature of less than *One hundred and ten* Degrees of Fahrenheit's Thermometer.

Any Person acting in contravention of this Section shall for each Offence be subject to a Penalty not exceeding *Five Pounds.*

Any Person selling or exposing for Sale any Petroleum of the above description shall, notwithstanding any Evidence to the contrary, be deemed to sell or expose for Sale such Petroleum for the Purpose of being used in Lamps, or otherwise for the Production of artificial Light, unless the Bottle or Vessel containing such Petroleum have attached thereto a Label in legible Characters, stating as follows:—"The Contents must on no Account be used for Lamps, or otherwise for producing artificial Light, and great care must be taken in bringing any Light near to such Contents, as they are highly explosive, and give off an inflammable Vapour at an ordinary Heat."

6. The Temperature at which Petroleum gives off an inflammable Vapour shall, for the Purposes of the Petroleum Acts, be tested in manner set forth in the Schedule hereto.

SCHEDULE

Test of Petroleum.

Two Test Instruments shall be employed, consisting of Two Vessels or Cups one within the other. The Petroleum is to be put into the inner Vessel; Water is to be placed in the outer Vessel. A light is to be applied to the outer Vessel in order to heat the Water. A Fahrenheit's Thermometer is to be placed in the Petroleum in the inner Vessel. A Light is to be applied from Time to Time close to the Surface of the Petroleum, and the Temperature denoted by the Thermometer when the First Flash takes place from the Explosion of the Vapour rising from the heated Petroleum shall be deemed to be the Temperature at which such Petroleum gives off an inflammable Vapour.

STREET ARCHITECTURE IN LEEDS.

OWING to the extension of the North Eastern Railway in Leeds, Messrs. Harvey and Reynolds, the well-known pharmaceutists and dealers in scientific apparatus, have been compelled to vacate their old premises in Briggate, and to open another place of business. The *Leeds Mercury,* in noticing the operations connected with the railway extension, thus describes Messrs. Harvey and Reynolds's new establishment:—"By this compulsory removal one of the most central streets in the town is a very considerable gainer, for the firm named have taken the opportunity of erecting, in Commercial-street, for their future accommodation, what good judges consider to be the handsomest shop in the borough. There will, of course, be some dissent from this unqualified approval, but there cannot be the slightest doubt that the new building greatly improves the locality in which it is erected; and that it is another proof of the superior taste and enterprise which has now, for some time past, been developing, in connection with our street architecture. In style the new shop is Gothic, freely treated, and the front, which is of stone, is divided into three stages by carved and moulded strings. The ground floor is divided into three pointed arches, which are carried upon clustered shafts of red and blue Aberdeen granite, with moulded stone bases and stone capitals, carved with natural foliage. The centre opening forms the doorway, which will be closed at night with a wrought-iron grill. The first floor—in front of which, when completed, there will be fixed an ornamental iron balcony—consists of an arcade of five arches, carried upon red granite shafts, with moulded stone bases and carved stone capitals. On the second floor are three two-light windows, with pointed arches, having carved spandrills and circular lights, the lights being divided by pillars of red sandstone. The arches throughout are formed of alternate sets of red sandstone and stone from the Harehills quarries. The red stone in the arches and the pillars of the top windows is from the celebrated quarries in the neighbourhood of Dumfries. This stone has also been used for the piers and shafts of the new church at Sheepscar; but we believe that these buildings are the only two in Yorkshire into which it has been introduced. The front of the shop is finished with crow-stepped gables, each of which terminates with a wrought-iron finial, the central finial being crested with a vane. We ought to add that the architect who has thus so ably carried out the wishes of the proprietors, is Mr. Corson, of South Parade."

CHEAP AND DEBASED MEDICINES.

THE following remarks by an American contemporary on the discordant prices quoted by different manufacturers of fluid extracts, suggest considerations respecting the debasement of medicines from which the English reader may draw important practical conclusions:—

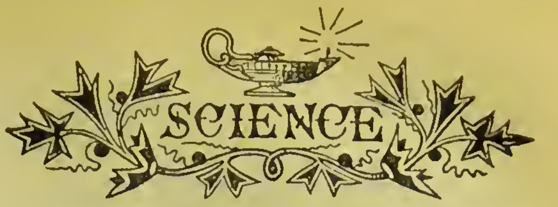
"It is curious to compare the prices current as issued by the various manufacturers of what, in contradistinction to chemicals, are called pharmaceuticals. Take, for instance, the class of fluid extracts; one list before us quotes fluid extract of sarsaparilla (comp.) at $2·85 per lb.; another quotes the same at $1·25. One quotes fluid extract of buchu at $3·25, another the same at $1·25, and so on, the prices varying from twice to three times as much on one list as another. Now a fluid extract, according to every acknowledged authority, is made, with a very few well-known exceptions, of such strength that for every troy ounce of the drug there must be just a fluid ounce of the fluid extract. This is the strength prescribed by the U. S. Pharmacopœia, and that which of course forms the basis of their employment in the treatment of disease, and especially in making the other preparations of the same drug. Where a troy ounce of a drug is used in making a pint of its syrup, a fluid ounce of its fluid extract added to fifteen fluid ounces of simple syrup, would be expected to furnish a pint of syrup of corresponding strength. So simple and easy is this method of preparing the weaker liquid preparations used in medicine, that it is now very much resorted to by pharmaceutists and physicians, and is recognised in several instances in the Pharmacopœia.

"What, then, is the reason that fluid extracts differ so greatly in price from different makers? Is it because some possess facilities for making them so much cheaper than others, or must we look for other causes? This, we think, can be answered conclusively thus:—Throwing out of view the exact processes laid down in the Pharmacopœia, to which some manufacturers conscientiously adhere, there are only two considerations which can materially affect the economy of the extraction of drugs; these are the completeness of the means of pressure and of the recovery of the excess of alcohol employed. At the present enormous cost of alcohol it is essential that not a drop should be wasted to secure an economical result; hence, most skilful percolation must be resorted to, connected with pressure for securing every drop of the percolate, and then well-adjusted apparatus for distillation must be used in concentrating the liquid. These requirements are met, perhaps, by all the leading manufacturers, and yet this great disparity in prices.

"The true reason is, undoubtedly, that some few manufacturers make these preparations of full strength, while the majority wholly ignore the standards of the Pharmacopœia, and sell preparations of just such strength as suits themselves. We will not ask whether this is justifiable by professional ethics, but we put it to the reader whether it is dealing justly toward that very large class of purchasers who are led by names, with very little knowledge as to the real merits of a preparation. If a fluid extract may represent one-fourth of the weight of a drug, or may be equal to its own weight, according to the whim of the maker, what value can it have in any rational scheme of medicine? As to the interest of the purchaser, it evidently lies in this, as in all other cases, in getting the best. If a man will ignore the standards of good practice in his manipulations, what confidence can one have in his fairness in business transactions? On the other hand, inflexible honesty in manufacturing indicates a similar principle in dealing. We should not think it necessary to go over these obvious points, but for the purpose of calling attention to an invariable rule which may be applied to these price-currents. When a fluid extract is offered at a given price, let the buyer count up the cost of the drug, remembering that a pint will take sixteen troy ounces (equal to a commercial pound and two ounces), with the menstruum, almost always alcoholic, and which by every process is liable to some waste, and the sum of these items will be the minimum cost of the preparations. To get at the fair selling price, a margin must be added for fuel and labour, and a profit of not less than twenty per cent. to the manufacturer. If the price quoted falls much below this, depend upon it, there is a deficiency somewhere, and the apparent cheapness does not imply economy to the purchaser."

PEPSINE.—Among the results of the application of science to the practice of medicine, none appear to promise more important results than pepsine, the digestive principle of the gastric juice, which in a purified state, and mixed with some inert vegetable powder, or dissolved in wine, or made into a lozenge, forms a valuable medicine. It appears that the use of this important agent is greatly increasing as the knowledge of its effects become more widely diffused. A few grains put into a wine-glass with some water form at once an artificial stomach in which food may be digested, and in this way the relative values of different samples of pepsine may be determined. At a lecture that was delivered a short time ago at the Society of Arts, by Dr. Letheby, an experiment of this sort was made, in which large quantities of animal fibrine were digested in bottles during the lecture, with English (Morson's) and also with French pepsine.—*Standard.*

SILVERING HOOKS AND EYES.—A patent has been granted in Bavaria for the following method of silvering hooks and eyes made of iron wire. The articles are suspended in dilute sulphuric acid until the iron shows a clean, bright surface. After rinsing in pure water, they are placed in a bath of a mixed solution of sulphate of zinc, sulphate of copper, and cyanide of potassium, and here remain until they receive a bright coating of brass. Lastly, they are transferred to a bath of nitrate of silver, cyanide of potassium, and sulphate of soda, in which they quickly receive a coating of silver.—*Scientific American.*



MODERN CHEMICAL NOTATION AND NOMENCLATURE.

BY JOHN CARGILL BROUGH, F.C.S.

I.

WE commence a short series of articles on Modern Chemical Notation and Nomenclature, with the special object of explaining the principles involved in the construction of the improved symbolic formulæ given in the *British Pharmacopœia.* Some of the ground we shall have to go over was traversed by us two years ago in a systematic exposition of the Chemistry of the *Pharmacopœia,* but as the amended edition of the national work had not then appeared, our attempt to incite readers of this journal to master the modern doctrines was premature. Whatever tends to disturb a cherished creed is naturally regarded with suspicion, and so long as the symbolic formulæ of the *Pharmacopœia* accorded with the teachings of popular text-books, pharmaceutists fostered the notion that the extension of chemical philosophy which had led to the introduction of strange names and formulæ did not concern them. They imagined that the old doctrines would long prevail in the chemical arts, uninfluenced by the novel views which fascinated those devoted to pure scientific research. But by adopting the new notation, the compilers of the *Parmacopœia* gave the modern ideas free scope for the manifestation of their inherent vitality, and the esoteric chemistry of a few years ago has become the basis of popular teaching. Pharmaceutists and chemists who have hitherto depended on the knowledge acquired before the general acceptance of the modern doctrines, now find that their disposition to "rest and be thankful" must be overcome, unless they forego the advantages resulting from the perusal of scientific journals.

The task we have undertaken is to elucidate certain conceptions upon which the new notation and nomenclature are founded, and to show their application to the systematic classification of the chemical substances mentioned in the *Pharmacopœia.* We do not propose to contrast the new and the old systems of chemistry, but simply to interpret the novel ideas involved in the former.*

TYPICAL CHEMICAL COMPOUNDS.

The combinations of hydrogen with chlorine, oxygen, nitrogen and carbon, respectively, namely, HYDROCHLORIC ACID, WATER, AMMONIA and MARSH-GAS, furnish the primary types to which the greater number of chemical compounds may be referred; consequently a clear perception of the constitution and mutual relations of these four bodies is essential to a just comprehension of the principles of modern chemical classification and notation. The facts tabulated below have been determined by direct experiment, and are quite independent of theory.

Composition of Hydrochloric acid.

By weight. 36·5 Hydrochloric acid gas = 1 Hydrogen + 35·5 Chlorine
By volume. [2 vols.] " = [1 vol] " + [1 vol] "

---

* To the current number of the *Pharmaceutical Journal,* published since this article was written, Mr. W. A. Tilden, F.C.S., contributes the first part of a critical examination of the arguments by which the modern atomic weights and chemical formulæ are supported. The scope of Mr. Tilden's treatise does not accord with that of the present series of articles

Composition of Water.

By weight. 18 Water = 2 Hydrogen + 16 Oxygen
By volume. [2 vols.] ,, (as Steam) = [2 vols.] ,, + [1 vol.] ,,

Composition of Ammonia.

By weight. 17 Ammonia gas = 3 Hydrogen + 14 Nitrogen
By volume. [2 vols.] ,, = [3 vols.] ,, + [1 vol.] ,,

Composition of Marsh gas.

By weight. 16 Marsh-gas = 4 Hydrogen + 12 Carbon
By volume. [2 vols.] ,, = [4 vols.] ,, + [——] ,,

These analytical results reveal a beautiful sequence of conditions. Equal bulks (2 volumes) of the four compound gases contain different proportions of hydrogen which, when liberated, measure respectively 1, 2, 3, and 4 volumes; and with each of these proportions of hydrogen is combined a proportion of another element which, when free and capable of existing in the gaseous state, measures 1 volume. Free carbon is not measurable as gas, but many considerations justify the introduction of marsh-gas into the series of typical hydrogen-compounds.

Representing the relative weights of equal volumes of hydrogen, chlorine, oxygen and nitrogen by the symbols H, Cl, O, N, and the relative weight of the non-gaseous carbon in marsh-gas by C, we may condense the preceding tables into the following simple expressions:

HCl = 2 vols. Hydrochloric acid gas.
H_2O = 2 vols. Water gas or Steam.
H_3N = 2 vols. Ammonia gas.
H_4C = 2 vols. Marsh-gas.

The differences between the four typical compounds become more obvious when the formulæ of water, ammonia, and marsh-gas are fully developed, thus:

$$HCl \qquad \left.\begin{matrix}H\\H\end{matrix}\right\}O \qquad \left.\begin{matrix}H\\H\\H\end{matrix}\right\}N \qquad \left.\begin{matrix}H\\H\\H\\H\end{matrix}\right\}C$$

Hydrochloric acid. Water. Ammonia. Marsh-gas.

The relative weights of chlorine, oxygen, nitrogen, and carbon, implied in the above symbolic expressions ($Cl=35{\cdot}5$, $O=16$, $N=14$, $C=12$) are now generally accepted as the minimum relative combining weights of these elementary radicals, the weight of hydrogen being the unit ($H=1$). By the ATOMIC THEORY these relative weights are assigned to indivisible particles or atoms of different kinds of matter, and are therefore termed *atomic weights*. In accordance with this theory, the relations between weight and volume admit of easy interpretation by the assumption that equal volumes of the elementary gases H, Cl, O, N, contain equal numbers of atoms. The atomic conception of the constitution of our typical compounds may be thus expressed:

A *molecule* Hydrochloric Acid = 1 *atom* Hydrogen + 1 *atom* Chlorine.
A *molecule* Water = 2 *atoms* Hydrogen + 1 *atom* Oxygen.
A *molecule* Ammonia = 3 *atoms* Hydrogen + 1 *atom* Nitrogen.
A *molecule* Marsh-gas = 4 *atoms* Hydrogen + 1 *atom* Carbon.

The term *molecule* is here employed to denote the smallest conceivable weight of a *compound* capable of existing by itself; but the term may also be applied to a proportionate weight of any elementary body. For example, the formulæ HCl and Cl_2 represent comparable weights of hydrochloric acid and free chlorine, as they also indicate equal volumes, and in the language of the atomic theory the two atoms of chlorine constitute a molecule of the element. Certain considerations relating to the physical properties of gases and the laws of combination by volume, have led chemists to conclude that most of the elementary bodies when in a free or uncombined state have a molecular structure comparable to that of hydrochloric acid; in other words, that their atoms unite with one another in pairs. The application of this hypothesis to the four gaseous elements of our typical compounds is illustrated by the following table:—

Atoms.	Atomic weights.	Molecules.	Molecular weights.
H	1	H_2	2
Cl	35·5	Cl_2	71
O	16	O_2	32
N	14	N_2	28

Reverting to the symbolic formulæ of our typical compounds, we perceive that Cl, O, N, C, are combined respectively with H, H_2, H_3, H_4, and we may take the proportion of hydrogen in each typical molecule as the measure of the other element's ATOMICITY or combining capacity. Thus chlorine is a *monatomic* element or equivalent to hydrogen in combining capacity; oxygen is *diatomic*, for its atom can combine with *twice* as great a weight of any given element as an atom of hydrogen, of chlorine, or of any other monatomic element; nitrogen is *triatomic*, its atom being capable of combining with *three* times as much as the standard atom of hydrogen; and carbon is *tetratomic* as its atom can combine with *four* times as much.* In symbolic expressions the atomicity of the elements may often be advantageously indicated by dashes or Roman numerals placed to the right of the symbols, thus:

$$HCl \qquad H_2O'' \qquad H_3N''' \qquad H_4C^{iv}.$$

The monatomic elements require no distinguishing mark. The following equations representing (in the simplest manner) the decomposition of water, ammonia, and marsh-gas, by chlorine, will help to elucidate the conception of atomicity:

$$\begin{array}{lcccccc} H_2O'' & + & Cl_2 & = & 2\ HCl & + & O'' \\ H_3N''' & + & Cl_3 & = & 3\ HCl & + & N''' \\ H_4C^{iv} & + & Cl_4 & = & 4\ HCl & + & C^{iv} \end{array}$$

Looking at these equations we see that 2 atoms of monatomic chlorine are required to expel from the water-molecule its single atom of diatomic oxygen; 3 to remove from the ammonia molecule its atom of triatomic nitrogen; and 4 to attack the molecule of marsh-gas and displace its atom of tetratomic carbon. From these considerations the reader may infer that the combining proportions or atomic weights of the elements cannot with propriety be termed "equivalents," as they do not necessarily coincide with the weights of interchangeable or equivalent quantities. The weights represented by H and Cl are true equivalents, for they have the same substitutional value; but the weights represented by O, N, and C, are respectively equivalent to H_2, H_3, and H_4.

Bodies analogous in constitution, or comparable in their modes of transformation, are said to belong to the same TYPE, and the *primary types* now admitted are those of Hydrochloric acid, Water, Ammonia, and Marsh-gas. We have seen, however, that the differences between these four typical compounds may be ascribed to the atomicity of their constituents. The empirical classification of compounds according to types is therefore perfectly consistent with systems of classification that have been founded solely on the atomicity of the elements. Nearly all the chemical compounds of the *Pharmacopœia* may be conveniently referred to the primary types HCl and H_2O, or to *multiple types*, such as H_2Cl_2, H_3Cl_3, H_4O_2, etc., representing combinations of two or more molecules of hydrochloric acid or water. A few simple illustrations of the association of bodies according to their molecular types are here given:

---

* Dr. Hofmann in his *Modern Chemistry* proposed the terms *univalent*, *bivalent*, *trivalent*, and *quadrivalent* as substitutes for those we have given, but they have not come into general use. The monatomic elements are frequently called *monads*, and the elements of higher atomicity, *dyads*, *triads*, *tetrads*, etc.

Hydrochloric Acid Type.		*Water Type.*	
HCl	Hydrochloric acid.	H_2O''	Water.
$NaCl$	Common salt.	KHO''	Caustic potash.
KBr	Potassic bromide.	Ag_2O''	Oxide of silver.
KI	Potassic iodide.	H_2S''	Sulphuretted hydrogen.

Ammonia Type.		*Marsh-gas Type.*	
H_3N'''	Ammonia.	H_4C^{iv}	Marsh-gas.
H_3P'''	Phosphoretted hydrogen.	HCl_3C^{iv}	Chloroform.

For the typical representation of many compounds certain groups of atoms called *compound radicals* must be taken as the equivalents of simple portions of the models with which such compounds are compared. For example, hydrocyanic acid, HCN, may be regarded as hydrochloric acid, in which the chlorine has been displaced by the radical cyanogen CN. In like manner alcohol, C_2H_6O, may be regarded as water in which one atom of hydrogen has been displaced by the radical ethyl C_2H_5; and ether, as water in which both atoms have been so displaced thus:

$$\left.\begin{matrix}H\\H\end{matrix}\right\}O\ \text{Water.}$$

$$\left.\begin{matrix}C_2H_5\\H\end{matrix}\right\}O\ \text{Alcohol.}$$

$$\left.\begin{matrix}C_2H_5\\C_2H_5\end{matrix}\right\}O\ \text{Ether.}$$

The radicals cyanogen and ethyl are obviously monatomic, as they take the place of single atoms of hydrogen in the types HCl and H_2O; but the existence of compound polyatomic radicals equivalent to oxygen, nitrogen, and carbon, is also conceded.

The same compound may, in many cases, be referred to different types. Thus, trichloride of phosphorus, $P'''Cl_3$, may be supposed to be derived from the type H_3Cl_3 (the triple molecule of hydrochloric acid) by the substitution of an atom of triatomic phosphorus for three atoms of hydrogen; or from the ammonia type $N'''H_3$ by the substitution of phosphorus for nitrogen and chlorine for hydrogen, atom for atom. The entire system of typical representation is, in fact, nothing more than a comparison of compounds with regard to their composition, by which particular analogies are revealed. That the several types are not classes of compounds distinctly separated from one another, will be evident if we apply the conception of compound radicals to the interpretation of the constitution of our four typical molecules, HCl, H_2O, H_3N, and H_4C. If we imagine one atom of hydrogen to be removed from each of these molecules, it is plain that the residues Cl, HO, H_2N, H_3N, will each be able to combine with an atom of hydrogen to reproduce the original compound, or with an atom of another monatomic element. The residues HO, H_2N, H_3C, must accordingly be regarded as monatomic radicals comparable to Cl, in fact they constitute the compound radicals which have been named hydroxyl, amidogen, and methyl. It follows that our four typical compounds may fairly be referred to one type, and formulated thus:

HCl Hydrochloric Acid = Hydrogen + Chlorine.
$H(HO)$ Water = Hydrogen + Hydroxyl.
$H(H_2N)$ Ammonia = Hydrogen + Amidogen.
$H(H_3C)$ Marsh-gas = Hydrogen + Methyl.

The reader should understand clearly that a *rational formula*, or an expression intended to convey an idea of the chemical nature of the compound to which it refers, merely recalls certain reactions in which the compound can take part, and that it may be modified to agree with other reactions. Thus certain chemical relations of water are more clearly expressed by $H(HO)$ than by H_2O the formula usually adopted.

We have explained in this article the principle ideas that have sprung from the adoption of atomic weights corresponding to equal volumes of gases, and have thus prepared the reader for a consideration of the modern chemical notation and nomenclature.

(To be continued in our next.)

ON THE PROPER USE OF GRAIN.

BY JUSTUS VON LIEBIG.*

IN view of the present distress of the poor inhabitants of Eastern Prussia, it may not be inappropriate to direct public attention to the fact that *grain, by its conversion into flour, loses its nutritive properties: that of rye by* 10 *per cent., that of wheat by* 15 *per cent.*

A grain fruit has a structure similar to that of an egg; as in the last-named, the yolk, the portion rich in fat and poor in albumen, is surrounded by a layer of albumen, so in the grain, the starchy nucleus is enveloped by a stratum of an albuminiferous substance, which, on being ground, passes into the bran; and this substance is the most important as a nourishment for the blood.

Moreover, some two to three per cent. more of bread may be obtained by omitting fermentation.

Where, as in the question of food for a whole population, the life of thousands depends upon a proper application of the means required for their sustenance, it would seem that some attention to scientific principles is in its place. The same quantity of grain, in the form of bread from *meal*, will save for every thousand persons, one hundred and twenty more from hunger and its concomitant results, than bread from *fine flour*, freed as the latter is from bran. In my own household, unfermented bread (made of two parts of coarse rye, and one part of wheat-meal) is in daily use, and is greatly liked by myself and family, as well as guests. Whoever does not know it, cannot appreciate the agreeable flavour of this kind of bread, and how great its digestibility. The coarse look does not affect the taste of the stomach, and physicians in general are well acquainted with its invaluable action upon persons of dyspeptic habits.

In regard to the greater value as nutriment of bran bread besides the possibility of its being readily established scientifically, it may be mentioned that in the Crimean war, the Russian prisoners in the French camp, who were accustomed to the coarse bread, suffered by the use of wheat bread, and a supplementary diet had to be granted.

The means for preparing bread without fermentation are well known, and in constant use in England and the United States, as well as on their vessels. The simplest is the addition to one hundred pounds of meal of a pound of supercarbonate of soda, with an equivalent quantity of some acid, preferably tartaric or cream of tartar.

Many years ago, gluten of wheat was suggested as a substitute for meat; this forms a large secondary product in the manufacture of starch, but, so far, has scarcely found any application, so that an attempt to find a useful end for it might be of high importance, not only in view of the present needs.

Mixed with its own weight of flour, gluten of wheat, according to Véron, is easy to work, and readily granulated; and in that form, together with some fat, vegetables, rice, or potatoes and bouillon, produces a very nutritious soup of agreeable flavour.

Munich, January 5, 1868.

---

* Translated from the *Augsburg Allgemeine Zeitung* in the American *Druggist's Circular*.

With reference to the above note, I have heard it remarked that, while I had pronounced myself in the *Letters on Chemistry* very strongly against the use of chemical substances for the preparation of food, I now have recommended them.

The wish has further been expressed on several sides, that I should give a precise formula for bran bread, as made in my household, that might be acted on without further instruction.

Regarding the contradiction charged against me, I may say that the remarks made in the *Letters* do not refer to bran bread; it may, however, readily be explained.

I have for several months past been engaged on a thorough investigation of the changes which human food undergoes, as regards its value as nutriment, by its treatment in cooking; among others, also, in the preparation of bread, and one of the results arrived at is that bran bread, commonly known as *pumpernickel*, cannot be obtained of uniform character or constant nutritive value, if made partly by fermentation.

In those German localities where it is in general use, it is prepared without any leaven, the process of making it resting on the knowledge that a dough of rye-meal passes spontaneously into fermentation. This latter fermentation, however, runs a course quite different from ordinary bread fermentation, evidently in consequence of the presence of bran. It commences usually after eighteen hours, or frequently only after twenty-four, the result being a decomposition, not only of part of the starch, but also of bran; that of the latter being readily recognized by the odour of butyric acid which the dough acquires; a decided formation of acid being only in a very few cases at all avoidable.

The experience of intelligent men in the trade confirm fully my own, especially that the common way as followed, *i.e.*, with fermentation, will never produce bran bread of constant composition, or without a decided loss of material.

A number of facts eliminated by the recent Prusso-Austrian war, further lead to the conclusion that a method of baking, which is independent of fermentation, and not apt to produce a bread which is subject to mould, would be of great value, not only for an army, but for the people at large; and the close research into these relations has confirmed me in the belief that bread of such qualities is not procurable except by the use of some chemical means, and that these, if properly applied, furnish bread of higher value than that at present in use, and of a nature which leaves nothing to be desired. These results will shortly receive publicity.

The recipe for bran bread as employed in my family is as follows:—

1 pound of meal (500 grammes) { 2 rye meal, coarse.
{ 1 wheat meal ,,
5 grammes (4 scruples) bicarbonate of soda.
20 cubic centimetres of dil. muriatic acid (= 5 fluid drachms).
10 grammes (8 scruples) common salt.
345 c. cent. water (= 11½ fluid ounces).

The dilute muriatic acid is made by mixing equal bulks of ordinary white acid with an equal bulk of water. The required proportion of this dilute acid is mixed with the water; the bicarbonate and chloride of sodium with the meal very intimately.

Of the latter mixture, one-fifth is set aside, the remaining four-fifths being made into dough with the whole of the water and acid, when the remaining fifth is added, and thoroughly kneaded under; the bread is then ready for baking.

Mr. J. Burton, of Nottingham, has succeeded to the business of Mr. James Wooley, Chemist and Druggist, Broad Street, Islington, Birmingham.

THE CREOSOTE OF COMMERCE.

ALTHOUGH the creosote of coal-oil (carbolic acid) is often employed in pharmacy as a substitute for the creosote of beechwood, it by no means follows that the two products are identical. According to the *Journal de Pharmacie et de Chimie* an observation made by M. Rust has led to the discovery of a reaction which permits of easily distinguishing between the two creosotes, namely, that creosote from coal forms with collodion a kind of jelly, whilst beechwood creosote produces nothing of the kind.

In Germany, a mixture of this sort is frequently employed for toothache, composed of equal parts of collodion and creosote: it should be gelatinous. Occasionally the product refuses to gelatinise, and this happens in dealing with beechwood creosote; the collodion thickens a little without losing fluidity.

The following are other reactions which serve to assist in characterizing the two species of creosote:—

Beechwood creosote is insoluble in ammonia, and gives with excess of weak potash a turbid solution.

Creosote from coal is insoluble in ammonia in the cold, but dissolves, forming a clear solution upon application of heat. It also gives a clear solution with weak liquor potash.

Lastly, with a neutral solution of perchloride of iron, beechwood creosote, dissolved in alcohol, gives a green coloration, whilst an alcoholic solution of the coal-oil is colored brown. With aqueous solutions, on the contrary, creosote does not change colour, whilst coal-tar creosote furnishes a blue.

ABSTRACTS OF FOREIGN PAPERS.

THE SEARCH FOR ALKALOIDS.—(DRAGENDORFF.)

THE double iodide of *bismuth* and potassium precipitates alkaloids in the same manner as the iodide of mercury and potassium. To prepare this reagent, sublimed iodide of bismuth is dissolved in a concentrated solution of iodide of potassium. To abstract the alkaloid from the precipitate which this reagent gives, it is treated with an alkali, and the mixture shaken with benzol.

The corresponding iodide of *antimony* and potassium acts in the same way, but the results are less satisfactory. The double chloride of iridium and potassium, as well as that of rhodium and potassium, also precipitate some alkaloids, notably strychnine and brucine.

As regards the solubility of the alkaloids in the benzol, which serves to extract the greater portion of them from the above precipitates, veratrine, atropine, aconitine, quinine, cinchonine, quinidine, codeine, narcotine, thebaine, papaverine, coniine, and nicotine, dissolve easily, as well as cafeine, colchicine, and cubebine. Theobromine, morphine, solanine, curarine, narceine, and berberine, are nearly insoluble in benzol.—[" Zeitschrift für Chemie," Vol. II., p. 478.]

THE DOUBLE IODIDE OF CADMIUM AND POTASSIUM AS A REAGENT FOR ALKALOIDS.—(MARMÉ.)

This compound precipitates the following alkaloids from very dilute solutions in presence of sulphuric acid:—Nicotine, coniine, piperine, morphine, codeine, thebaine, narcotine, narceine, quinine, quinidine, cinchonine, strychnine, brucine, veratrine, berberine, atropine, hyoscyamine, aconitine, delphinine, emetine, curarine, and cytisine. These precipitates are flocculent and white, but become generally crystalline. Quinine and strychnine, diluted with 10,000 parts of water, are completely precipitated. These precipitates are insoluble in ether, soluble in alcohol, slightly soluble in water, and soluble in an excess of the double iodide. They give up the alkaloid when shaken with a suitable solvent after the addition of an alkali, and are very analogous to the combinations of the alkaloids with the alkaline iodo-mercurates and iodo-bismuthates.

The cadmium compound does not precipitate the Glucosides, amygdaline, salicine, saponine, cyclamine, ononine, digitaline, phlorydzine.—[" Zeitschrift für Chemie," New Series, Vol. III., p. 572.]

PREPARATION OF HYOSCYAMINE.—(H. LUDWIG.)

Extract the seeds of Hyoscyamus with rectified spirit, distil off three-fourths of the spirit, and shake the acid residue with water, which causes the separation of a resinous layer. Part of the water is evaporated, the liquid filtered, treated with potash, and agitated with chloroform. After the evaporation of the chloroform, there remains a resinous alkaloid with a strong odour of tobacco. (1 gramme of henbane yields 0·7 gramme.)

The hydrochloric acid solution of this alkaloid is uncrystallisable; treated with potash it deposits hyoscyamine. This may be crystallised from benzol in colourless needles. Besides this alkaloid, henbane furnishes a brown fatty matter, and a coloured nitrogenised resin.—[" Bulletin de Société Chimique," June, 1867.]

PRESERVATION OF SULPHYDRIC ACID.—(LEPAGE.)

The author dissolves the gaseous acid (sulphuretted hydrogen) in a mixture of equal parts of pure glycerine and water. This is not so concentrated as a purely aqueous solution of the gas; but whilst the latter will scarcely keep good for two months, this, at the end of fifteen months, reacts upon metallic solutions as energetically as if it had been freshly prepared.—[" Journal de Pharmacie," April, 1867.]

MOUTARDE EN FEUILLES; OR MUSTARD PAPER.—(PAUL—RIGOLLOT.)

This new sinapism is prepared by fixing on a sheet of strong paper a thin layer of mustard by means of a solution of caoutchouc in a volatile oil. The adhesion is perfect. Paper, thus prepared, and immersed for twelve or fifteen seconds in cold or tepid water, and then applied to the skin, acts as a powerful rubefacient. 92 grains of mustard in this form are sufficient to rubify very completely a surface of fifteen and a half square inches. The author increases the activity of the mustard he uses, by extracting the fixed oil, of which it contains 28 per cent., and which is quite inert. When deprived of this oil, mustard resists the action of the air, and keeps good for an almost indefinite time. Ordinary mustard, as is well known, loses its qualities in a comparatively short time.

This mustard paper is intended as a substitute for the mustard poultice, and would appear to be well adapted for the purpose.—[" Annuaire Pharmaceutique," 1868.]

DISTILLED ORANGE FLOWER WATER.—(REDING.)

To restore Orange Flower Water which has " turned," to its original limpidity and odour, shake it with a little calcined magnesia, let the mixture stand for twenty-four hours, and filter. It will then remain good for an indefinite time.—[" Annuaire Pharmaceutique," 1868.]

NOTE ON FRANKLAND AND ARMSTRONG'S MEMOIR ON THE ANALYSIS OF POTABLE WATERS.

BY J. ALFRED WANKLYN, E. T. CHAPMAN, AND MILES H. SMITH.

IN the memoir lately published * by Frankland and Armstrong describing the method by which they propose to conduct the examination of waters as regards organic substance, objections are raised to the method we have recommended for determining the relative quality of water by means of the albuminoid ammonia it yields by treatment with alkaline solution of permanganate of potash. Those objections are, to a great extent, based upon a comparison of the results obtained in this way, with the results obtained by Frankland and Armstrong's method. We have, therefore, made a careful inquiry into the conditions to which the difference between the results furnished by the two methods may be referred, and into the adequacy of Frankland and Armstrong's method to be applied as a test of the results furnished by our method.

In placing before the Society the conclusions at which we have arrived, we must, in the first place, premise, * as before stated, that we do not consider the complete conversion of organic nitrogen into ammonia by our method as being essential to its applicability for determining the relative quality of water, and that we rely simply upon the constancy of the ratio between the amount of albuminoid substance in the water, and the quantity of ammonia produced.

The next point which we have to consider is, the degree of accuracy attainable in estimating the carbon and nitrogen in the water residue according to Frankland and Armstrong's method. In order to enable a judgment to be formed on this point, the authors gave ten examples, in which known weights of known substances were dissolved in distilled water with some carbonate of soda, or carbonate of lime, and the residues obtained, after treatment with SO_2 and evaporation, were burnt with chromate of lead. In the following tables we give the amounts of carbon taken and the amounts obtained, also the amounts of nitrogen taken and obtained, and the errors applying to each experiment:—

	Substance taken.		Carbon taken.	Error.	Carbon obtained.
	Milligrm.		Milligrm.	Milligrm.	Milligrm.
I. .	35·2	Sugar	14 82	— 0·19	14·63
II. .	34·7	,,	14·60	— 0·74	13·86
III. .	11·4	,,	4·80	— 0·40	4·40
IV. .	12·2	,,	5·14	+ 0·16	5·30
V. .	11·5	,,	4·84	— 0·50	4·34
VI. .	10·	Urea	2·00	— 0·23	1·77
VII. .	10·25	,,	2·05	+ 0·06	2·11
VIII .	10·4	,,	2·08	+ 0·31	2·39
IX. .	20·2	,,	4·04	+ 0·48	4·52
X. .	25·	Hippuric acid	1·508	— 1·22	13.86

	Nitrogen taken. Milligramme.	Error.	Nitrogen obtained. Milligramme.
V............	2·46	+ 0.08	2·54
VI............	4·66	— 0·03	4·63
VII............	4·78	— 1·21	3·57
VIII............	4·84	— 0·16	4·68
IX............	9·42	— 0·55	8·87
X............	1·95	+ 0·08	2·03

From these tables it will be seen that there is a deficit of carbon in six out of the ten determinations, and an excess in four of them. The greatest error in deficit is 1·22 milligrm.; the least error in deficit is 0·19 milligrms.; the mean error on the six determinations being 0·49 milligrms. In ordinary organic analyses, wherein 200 or 300 milligrms. of a substance such as sugar is taken, it is possible to obtain results which are accurate to within about one-tenth per cent. equal to an absolute error of 0·2 milligrm. of carbon. When smaller quantities of substance are analyzed in the ordinary way, it is admitted that the degree of *percentage accuracy* attainable is inferior.

The quantities of organic substance to which the results given by Frankland and Amstrong refer, are from 10 to 35 milligrms., being about one-tenth as much as would be operated upon in an ordinary organic analysis. But the absolute error, as shown in the tables above, is from 0·2 to 1·2 milligrm. of carbon, so that while operating on smaller quantities, there is no corresponding reduction of *absolute* error, and consequently Frankland and Armstrong's method, as exhibited by their own experiments, does not attain to a higher degree of accuracy than would be reached by ordinary organic analysis applied to very small quantities of organic substance.

---

* Chem. Soc. Journal (March, 1868.) Reprinted in our last.

* Chem. Soc. Journal (December, 1867.)

The importance of this circumstance as regards the estimation of organic substance in a water will be appreciated, when it is considered that the quantity of organic substance in a litre of water, is seldom anything like so much as the quantities of sugar, &c., operated upon in the experiments given as indicative of the degree of accuracy attainable by Frankland and Armstrong's method.

From the results obtained for nitrogen it will be seen, that out of the six experiments, the results of four are in deficit, and those of two are in excess. These results apply to quantities of nitrogenous substance fully ten-fold as large as those likely to be present in a litre of ordinary water. It, therefore, appears to us that taking these data as representing the extent to which this method can be depended on for the determination of the minute quantities of carbon and nitrogen in a water-residue, it does not estimate quantities of nitrogen which fall short of half a milligramme. Now, on turning to the table of analyses at the end of the memoir,* it will be seen that the quantity of organic nitrogen per litre (and a litre is the quantity of water upon which the determinations were made), is represented as ranging from 0·00 through all varieties of intermediate value to 0·56 milligrm. These quantities of nitrogen are, however, within the limits of error indicated by the experiments above referred to; consequently, we cannot regard these results as representing differences of quality in the different kinds of water.

Having thus considered what are the capabilities of the method proposed by Frankland and Armstrong, we will now proceed to discuss the comparison which they institute between the results furnished by our method, and those obtained by their own. In the first place it will be seen that the differences between the results of the two methods observed by Frankland and Armstrong, range from + 0·05 to — 0·52 of a milligramme, amounts which, as we have already shown, lie within the limits of experimental error.

From these differences, therefore, no conclusion of any kind can be drawn, and we consider it to be sufficiently evident that Frankland and Armstrong's method is incapable of testing the accuracy of the results obtained by our method as stated below.

	Milligramme per litre.	
	Albuminoid NH_3, Wanklyn, Chapman, and Smith.	Organic Nitrogen. Frankland and Armstrong.
Bala Lake water … … …	0·25	0·01
Loch Katrine water … …	0·13	0·08
Manchester water … … …	0·07	0·26
Thames water as delivered in London by the different companies at different dates …	0·06	0·48
	0·15	—
	0·12	—
	0·14	—
	0·20	—
New River water … … …	0·084	0·14
	0·09	—
East London Water Company	0·09	0·24
Caterham Water … … …	0·00	0.07

On general grounds we are disposed to consider that the circumstance of Frankland and Armstrong's method being applicable only to the residue obtained by evaporation of a water, is a disadvantage both as regards the time requisite for making an experiment, and on account of the probability of loss of organic substance. But, in our opinion the preliminary treatment of the water with SO_2 in order to eliminate nitrogen existing as nitrates and nitrites comprises a source of error of a far more serious character. There can be no question as to the complete expulsion of CO_2 by this treatment, and we therefore pass over that part of the subject. But as the nitrogen existing as nitrates in some kinds of water is often much more than ten times as much as the nitrogen existing in organic states of combination, it will be manifest that the estimation of organic nitrogen by Frankland and Armstong's method, would become illusory, if only a small portion of the nitrates were to escape decomposition.

On referring to Frankland and Armstrong's paper it will be seen that, the process for the destruction of the nitrates and nitrites is as follows—"2 litres are poured into a convenient stoppered bottle, and 60 c.c. of a recently prepared saturated solution of sulphurous acid are added.' . . . . "One-half of this sulphurised water is now boiled for two or three minutes, and unless it contained a considerable amount of carbonates, 0·2 grm. of sodic sulphite is to be added during the boiling, so as to secure the saturation of the sulphuric acid formed during the subsequent evaporation." The addition of "a couple of drops" of solution of ferrous or ferric chloride is also recommended, and the water is subsequently to be evaporated to dryness upon a steam or water-bath.

The authors remark further on, that "such an expulsion of the nitrogen of nitrates and nitrites is a remarkable reaction, and could scarcely have been predicted; indeed, it takes place to a very partial extent only when a nitrate is dissolved in water, and evaporated with excess of sulphurous acid in imitation of a natural water; neither is the result very different when sodic chloride, or calcic or magnesic carbonate is added."

We agree with the authors in looking upon a total decompositition of a nitrate by a few minute's boiling with a solution of sulphurous acid as remarkable. On the other hand a decomposition of free nitric acid by sulphurous acid is what we should be quite prepared to expect.

When it is considered that a litre of many waters contains in solution sufficient free oxygen to generate 0·06 grm. of sulphuric acid by oxidation of the sulphurous acid, it will become obvious that, notwithstanding the addition of the 0·2 grm. of sodic sulphite, which is recommended in the case of those waters containing no considerable amount of carbonates, there will always be great danger of the water becoming strongly acid. The probability of the 30 c.c. of saturated solution of sulphurous acid containing sulphuric acid is also great; there is, moreover, the risk of absorption of oxygen, and consequent formation of sulphuric acid during the standing in the bottle, and during the boiling in the flask.

It is worthy of note, that the addition of the "couple of drops" of solution of ferric chloride, which the authors find to be so efficacious in rendering the decomposition of the nitrate complete, is equivalent to an addition of so much free acid.

Of the six experiments given by Frankland and Armstrong to illustrate the complete decomposition of the nitrates (pp. 96, 97), the first one, the third and fourth, are instances in which, from the absence of any alkaline or earthy sulphite to take up the sulphuric acid, there must necessarily have been free nitric acid from the very beginning of the reaction. In the second of these experiments, 10 c.c. of a solution of sodic sulphite (strength unknown) were added. In the fifth experiment a natural water was taken, but no mention is made of the amount of carbonate of lime in it. Only the sixth admits of discussion as a possible example of a complete reduction of nitrates without the charging of the water with free sulphuric acid. In this experiment, ·01 grm. magnesia, 0·1 grm. calcic carbonate, 0·1 grm. sodic chloride, 0·01 grm. potassic chloride, 1 drop of solution of ferric chloride, 2 drops of solution of hydric sodic phosphate, 0·1 grm. potassic nitrate, and 15 c.c. of sulphurous acid solution were taken, and complete destruction of the nitrate was the result.

By calculation, it will be seen that the 10 milligrammes of magnesia and 100 milligrammes of carbonate of lime are equivalent to 122·5 milligrammes of sulphuric acid. Now the oxygen dissolved in the water cannot have been less that would suffice to form about 60 milligrammes of sulphuric acid, whilst 97 milligrammes of sulphuric acid would be set free by the reduction of the 100 milligrammes of nitrate of potash. Thus we should have about 34·5 milligrammes of free sulphuric acid as the final result of the reaction.

It would, therefore, appear that in Frankland and Armstrong's test-experiments, in which there was complete reduction of the nitrates, the circumstances were such as to give rise to free sulphuric acid as a final product.

We have made experiments in which care was taken to avoid the production of this acid as an ultimate product of the reaction, and have never succeeded, under such circumstances, in effecting a complete destruction of the nitrates. In some instances, iron and phosphates were present in the natural waters experimented upon; but still the destruction of the nitrates was incomplete.

---

* Chem. Soc. Journal, March, 1868, p. 108.

The following experiments may be cited:—Water from a pump in Great Portland Street: 1 litre taken, 30 c.c. of a saturated solution of sulphurous acid was added, and then boiled for two minutes; evaporated on the steam-bath (one or two c.c. of a saturated solution of sulphurous acid being added four times during the evaporation). Result: 14 milligrammes of HNO_3 were left in the residue. It is to be observed that this water contains both iron and phosphates. The water from a pump in Bartholomew Lane gave a similar result.

To another well-water a quantity of sulphite of protoxide of iron was added before submitting it to the action of sulphurous acid, and yet the residue contained much unreduced nitrates.

In another instance, 100 milligrammes HNO_3 (in the state of nitrate of potash), 300 milligrammes Ca_2OCO_2, 100 milligrammes KCl, and about 400 milligrammes of phosphate of lime were put into half a litre of distilled water, and boiled with 30 c.c. saturated solution of sulphurous acid, evaporated to dryness. Result: 55 milligrammes of HNO_3 left undecomposed in the residue.

On repeating this experiment and substituting sulphite of protoxide of iron for the phosphate of lime, 69·5 milligrammes of HNO_3 was left undecomposed.

In another experiment half-litre of New River water was taken, saturated with carbonic acid, and then boiled, cooled in an atmosphere of that gas, and again boiled and cooled in carbonic acid; in this way it was insured that the water should be free from dissolved oxygen. 15 c.c. of a saturated solution of sulphurous acid, free from sulphuric acid, was then added, and the whole mixture boiled for 2½ minutes and evaporated to dryness. The residue was found to contain much nitric acid. (These determinations of nitric acid were made by a modification of Schulze's aluminium-process, a description of which has been laid before the Chemical Society.)

From all these experiments two facts are very apparent. First, the operation of destroying the nitrates in water by means of sulphurous acid is a very uncertain one. Second, the operation, as practised by Frankland and Armstrong, gives rise to free sulphuric acid in the residue. We need hardly add that few organic substances will bear being heated to 100° C., with their own weight of sulphuric acid, without undergoing great decomposition.

We must here call attention to the circumstance that in the experiments made to determine the degree of accuracy attainable by Frankland and Armstrong's method of estimating carbon and nitrogen, no nitrates were added to the water, and as there was in all cases sufficient alkaline or calcareous sulphite to take up any sulphuric acid produced by oxidation of sulphurous acid by the oxygen dissolved in the water, there was no charring of the residue by sulphuric acid. In this very material condition, therefore, the trial experiments differ from those made to prove complete destruction of nitrates, and from operations on natural water.

In the case of water containing large quantities of organic nitrogen, as for example actual sewage in which the amount of nitrogen would be capable of estimation by Frankland and Armstrong's method, we encounter another difficulty due to the presence of ammonia in the water residue.

In order to arrive at the organic nitrogen, it would then be necessary to make a determination of the free ammonia in the water, and to deduct the nitrogen corresponding to it from the total nitrogen of the residue. Owing, however, to the circumstance that ammonia would be lost by diffusion during the evaporation (even in presence of an acid), the water-residue will contain only a part of the original ammonia, and consequently an error would arise in deducting the amount of nitrogen corresponding to the original ammonia, from the total nitrogen of the residue.

This source of error would, of course, affect to some extent all determinations of organic nitrogen in waters containing free ammonia, but it would become important in the case of such waters as London well water, which often contains a considerable quantity of free ammonia.

We will conclude by giving in a tabular form a number of analyses made by our ammonia-method, showing the extreme constancy of the results. Each of the first five sets of analyses bracketed together was made on the same day, on the same sample of water.

Name of Water.	Quantity operated upon. Litres.	Milligrammes of Albuminoid. Ammonia per litre of the water.
West Middlesex water ...	½	0·070
	1	0·065
	1½	0·07
Southwark and Vauxhall ...	1	0·20
	1	0·205
	½	0·19
	¼	0·18
	1½	0·21
Well at Wimbledon	1	0·15
	½	0·16
Bishopsgate-street pump ...	1	0.24
	½	0·255
Mixed with equal volume of distilled water	½ (= 1 litre of mixture.)	0·26
Thames water above Hampton	½	0·21
	1	0·21
	1½	0·205
Manchester water all taken at same *date*, but from different parts of the town ...	½	0·06
	½	0·07
	½	0·07
Edinburgh water taken from a tap at the University on 18th and 11th Sept., 1867..	1	0·075
	1½	0·063
	1	0 070

Corner for Students.

The chemical formulæ employed in this section are based upon the new system of atomic weights, unless the use of the older system is specially indicated. In the *British Pharmacopœia* the symbols corresponding to those adopted here are printed in heavy Clarendon type.

PRIZES.

We intend to award Prizes of Scientific Books to Students whose answers evince meritorious assiduity. We shall explain the conditions under which such prizes will be awarded next month.

QUESTIONS.

Liquor Zinci Chloridi, *B.P.*—Why are the solution of chlorine and the zinc carbonate used in the prescribed process, and what is the nature of the brown sediment which appears?

Percentage Composition of the Sugars.—Work out the percentages of carbon, hydrogen, and oxygen in cane sugar (Saccharum purificatum, *B.P.*), and in sugar of milk (Saccharum Lactis, *B.P.*)

Calcis Hydras, *B.P.*—Calculate the theoretical yield in grains of the officinal process.

Potassæ Prussias flava, *B.P.*—Calculate the percentage of potassium in this salt.

Hydrargyri Oxidum rubrum, *B.P.*—Express in modern symbols the chemical changes involved in the preparation of this oxide.

Specific Gravity.—1. What is the weight in grains of a gallon of chloroform?

2. Find the weight of sulphur in a gallon of the officinal sulphurous acid.

3. What will be the weight of a block of limestone containing 12 cubic feet; 1 cubic foot of water weighing 62·5 lb., the sp. gr. of the stone being 2·64?

4. What is the weight in grammes of a litre of benzol?

ANSWERS.

Liq. Calcis saccharatus, *B.P.* (April, p. 222).—1. Because lime is much more soluble in solution of sugar than in water alone.

2. According to the prescribed tests, this solution is 12·696 times stronger in lime than the officinal Liq. Calcis, for while 1 pint of the latter corresponds to 11·2 grains of CaO, 1 pint of the saccharated solution corresponds to 142·2 grains; and

$$11{\cdot}2 : 1 :: 142{\cdot}2 : x = 12{\cdot}696.$$

Both questions correctly answered by *F. J. Barrett*, Newark-on-Trent; *R. S. Crossby*, Grantham; *W. F.*; *John Gregory*, Stockton-on Tees; *A. Nicholls*, Penzance; *R. Moss*, Dublin; *T. S. Sanders*, Salford; *G. Welborn*, Grantham; *Joseph Young*, Leicester. The first question answered by *J. D.*, Pembroke; *W. Walker*, Settle. The second by *J. Watts*, Attercliffe.

Acidum Hydrochloricum, *B.P.* (April, p. 222).—The weight of 10 fl. oz. of the acid of sp. gr. 1·16 is found by the proportion

$$1{\cdot}00 : 1{\cdot}16 :: 4375 : x;\ \therefore x = 5075 \text{ grains.}$$

Then, as hydrochloric acid gas forms 31·8 per cent. of the solution, the total weight of HCl in 5075 grains is found by the proportion

$$100 : 5075 :: 31{\cdot}8 : x;\ \therefore x = 1613{\cdot}85 \text{ (HCl. in grs.).}$$

And since the relative weights of HCl and Cl are 36·5 and 35·5, the total weight of chlorine is found by the proportion

$$36{\cdot}5 : 1613{\cdot}85 :: 35{\cdot}5 : x;\ \therefore x = 1569{\cdot}635 \text{ (grains of Cl in 10 fl. oz.).}$$

Again, since 58·5 parts of sodic chloride correspond to 35·5 of Cl, the quantity of the salt required for the production of 1569·635 grains of the element is found by the proportion

$$35{\cdot}5 : 1569{\cdot}635 :: 58{\cdot}5 : x;\ \therefore x = 2586{\cdot}581 \text{ (grains of NaCl.}$$

Answered correctly by *F. J. Barrett, W. F., J. Gregory, R. Moss, T. S. Sanders, Joseph Young, J. Watts*; with approximate correctness by *G. Welborn*; incorrectly by *R. S. Crossby, J. D., A. Nicholls, W. Walker.*

Volumetric Analysis (April, p. 222).—1. Weight of crystallised ferrous sulphate oxidised by 972 grain-measures of "volumetric solution of bichromate of potash." As 1,000 grain-measures of the volumetric solution are capable of converting 16·8 grains of iron contained in a ferrous salt to the ferric state, the quantity of iron thus affected by 972 grain-measures is found by the proportion

$$1000 : 972 :: 16{\cdot}8 : x;\ \therefore x = 16{\cdot}33;$$

and, since 278 parts of the crystallised salt $FeSO_4 \cdot 7H_2O$ correspond to 56 of Fe, the required weight is found by the proportion

$$56 : 16{\cdot}33 :: 278 : x;\ \therefore x = 81{\cdot}066 \text{ grains.}$$

Answered correctly by *W. F., J. Gregory, R. Moss, T. S. Sanders, A. Nicholls, G. Welborn*; incorrectly by *R. S. Crossby, W. Walker, J. Young.*

2. Percentage of real hydrocyanic acid in a solution, 140 grains of which, having been rendered alkaline, require 778 grain-measures of "volumetric solution of nitrate of silver" to be added before a permanent precipitate begins to form. In the officinal diluted hydrocyanic acid, HCN constitutes 2 per cent. by weight of the solution; in other words, 270 grains by weight of this solution corresponds to $2{\cdot}7 \times 2 = 5{\cdot}4$ grains of real acid, the quantity required for the test reaction with 1,000 grain-measures of the volumetric solution of nitrate of silver. The weight of real acid indicated by 778 grain measures of the volumetric solution is accordingly found by the proportion

$$1000 : 778 :: 5{\cdot}4 : x;\ \therefore x = 4{\cdot}2 \text{ grains.}$$

Then as the weight of the sample of diluted acid under consideration is 140 grains, the percentage of real acid is found by the proportion

$$140 : 100 :: 4{\cdot}2 : x;\ \therefore x = 3 \text{ per cent.}$$

Answered correctly by *W. F., J. Gregory, R. Moss, A. Nicholls, T. S. Sanders, G. Welborn*; with approximate correctness by *J. Young*; incorrectly by *R. S. Crossby, W. Walker.*

Ferrum Redactum, *B.P.* (April, p. 222).—The reduction of iron from the hydrated peroxide by hydrogen is thus represented by chemical symbols and their corresponding weights:—

$$\begin{aligned} Fe_2O_3.H_2O \times H_6 &= Fe_2 + (H_2O)_4 \\ 178 \times 6 &= 112 + 72. \end{aligned}$$

The theoretical yield of reduced iron from 1 oz. of the hydrated peroxide is accordingly found by the proportion

$$178 : 437{\cdot}5 :: 112 : x;\ \therefore x = 275{\cdot}282 \text{ (weight of reduced iron in grains).}$$

The weight of hydrogen required for the reduction is found by the second proportion

$$178 : 437{\cdot}5 :: 6 : x;\ \therefore x = 14{\cdot}747 \text{ (weight of hydrogen in grs.)}$$

Answered correctly by *W. F., J. Gregory, R. Moss, G. Welborn.*; correctly, but not fully, by *A. Nicholls, J. Young, J. Watts*; with approximate correctness by *R. S. Crossby, T. S. Sanders, W. Walker.*

Specific Gravity (April, p. 222).—1. Sp. gr. of gold. The weight of the water taken + the weight of the gold = 853·15 grains; but as 851·15 grs. is the weight finally obtained, the gold has evidently displaced 2 grains of water;

$$\therefore \frac{38{\cdot}95}{2} = 19{\cdot}475, \text{ sp. gr. of the gold.}$$

2. Sp. gr. of cadmium. From the terms of the question, it is evident that the rod of cadmium weighing 19.93 grains has the volume of 2 grains of water;

$$\therefore \frac{17{\cdot}93}{2} = 8{\cdot}965, \text{ sp. gr. of the cadmium.}$$

Both questions answered by *F. J. Barrett, R. S. Crossby, J. D.* (Pembroke), *W. F., J. Gregory, W. A. Higginson* (Cork), *R. Moss, A. Nicholls, T. S. Sanders, W. Walker, J. Watts, G. Welborn, J. Young.*

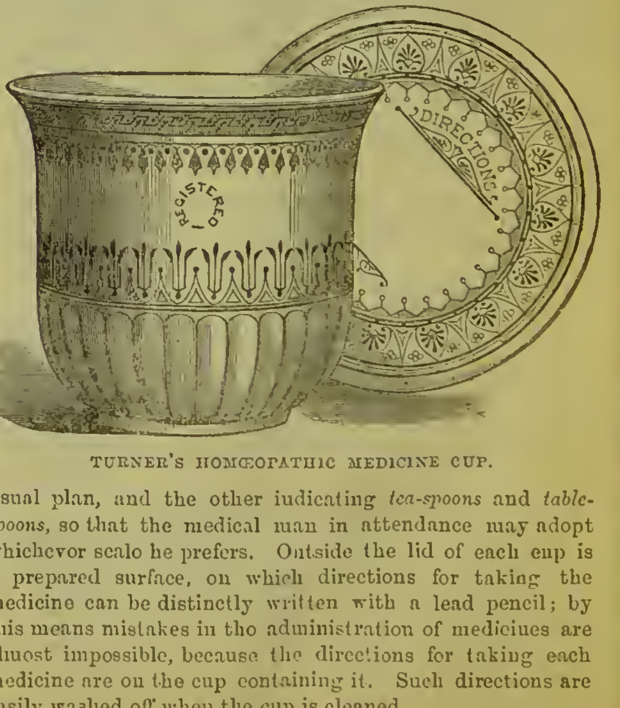
TO CORRESPONDENTS.

⁂ All questions forwarded to us for publication in this "Corner for Students" should be accompanied by the answers which the propounders believe to be correct. As a rule, numerical results should be worked out to three decimal places. Communications should reach us at least ten days before the date of publication.

NOTES OF NOVELTIES

TURNER'S IMPROVED HOMŒOPATHIC MEDICINE CUPS.

The disciples of Hahnemann take care that all the accessories of their treatment shall be elegant and convenient, and their opponents do not hesitate to assert that their neat little cabinets and handy spoons and cups have materially helped to sustain the homœopathic system. Be this as it may there can be no difference of opinion with regard to the utility and elegance of the medicine cup lately introduced by Messrs. Henry Turner & Co. The design of the cup is admirable, whether considered with reference to general form or ornamentation. The material of which it is made is *ivory porcelain*, which is cleaner and in every other respect superior to the earthenware hitherto employed for homœopathic medicine cups. Within the cup are two double scales the one indicating *ounces* and *dessert-spoons*, according to the usual plan, and the other indicating *tea-spoons* and *table-spoons*, so that the medical man in attendance may adopt whichever scale he prefers. Outside the lid of each cup is a prepared surface, on which directions for taking the medicine can be distinctly written with a lead pencil; by this means mistakes in the administration of medicines are almost impossible, because the directions for taking each medicine are on the cup containing it. Such directions are easily washed off when the cup is cleaned.

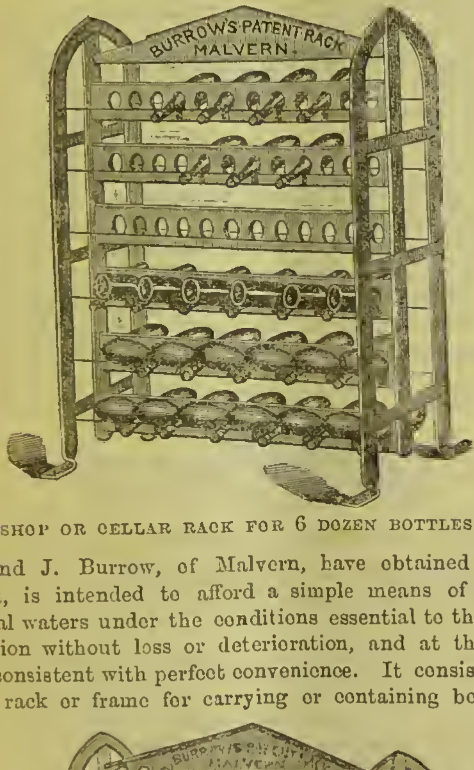


TURNER'S HOMŒOPATHIC MEDICINE CUP.

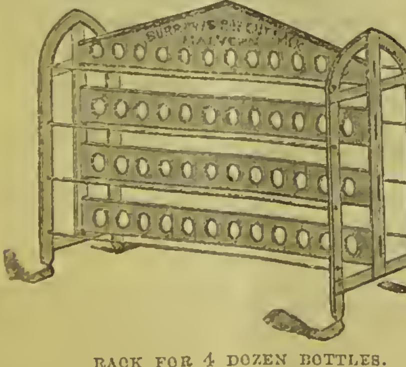
To homœopathic practitioners who leave medicine from pocket-cases with their patients, this prepared surface will be invaluable, as it will enable them to write explicit directions on the lid of each cup containing medicine. The cups are made in two sizes, viz.,—to hold six or eight ounces, and are sold in pairs numbered one and two, the lids being numbered to correspond.

BURROW'S PATENT RACK FOR MINERAL WATERS.

The storage of aërated waters is attended with peculiar difficulties, owing partly to their unstable nature, and partly to the awkward forms of the bottles in which they are usually confined. An ordinary soda-water bottle is admirably adapted for resisting internal pressure, and consequently it is a most unmanageable article. It cannot stand upright, and even when lying down it evinces a disposition to roll about. Then, when full it ought to be kept with its neck pointing downwards, as a precaution against the escape of the imprisoned gas; and moreover, it should be so placed as to be always accessible, and removable without disturbance of other bottles. The invention for which Messrs. W. and J. Burrow, of Malvern, have obtained letters patent, is intended to afford a simple means of storing mineral waters under the conditions essential to their preservation without loss or deterioration, and at the same time consistent with perfect convenience. It consists of a metal rack or frame for carrying or containing bottles of Seltzer, soda, or other aërated waters, in such a manner that each bottle is held safely and separately in the best position, and can be removed or replaced at pleasure without disturbing the others. The annexed engravings show the construction of the rack so plainly, that a written description would be superfluous.



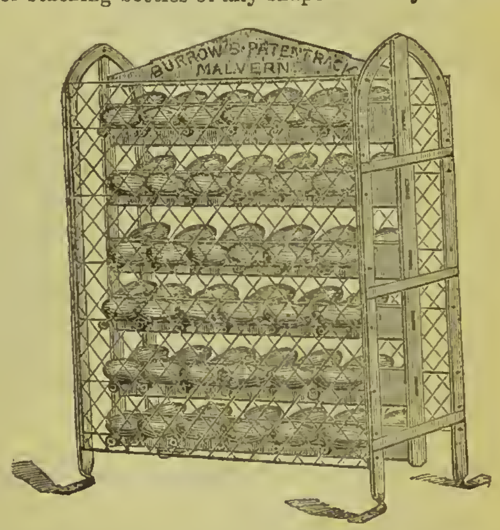
SHOP OR CELLAR RACK FOR 6 DOZEN BOTTLES.



RACK FOR 4 DOZEN BOTTLES.

Ordinary bins, chests, or hampers are unsuitable for the storage of mineral waters. Their use leads to much loss from breakage, and, as the air cannot circulate freely between the bottles, the corks soon discolour or become mouldy, and impart a bad flavour to the waters. The form of the bottles in which mineral waters are of necessity kept, prevents safe stacking in the ordinary way, because the removal of one bottle leads to the rolling of several, and loss by breakage is the certain result. No plan of storing mineral waters is perfect which does not provide a separate receptacle for every bottle, thus securing absolute protection against breakage, and ensuring the passage of a free current of air around every bottle, so that all may be cool and in perfect condition.

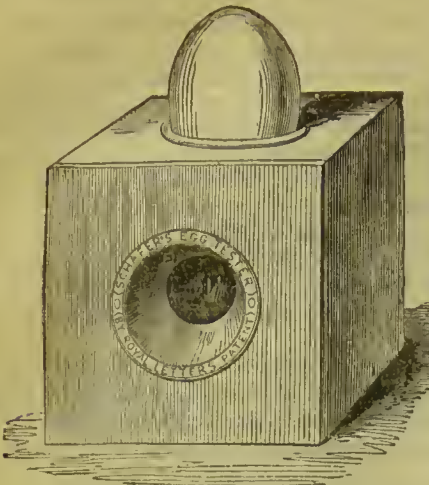
It will be seen that Burrow's Patent Rack is adapted to the requirements of all who keep mineral waters for sale or private consumption, and that it provides the means necessary for stacking bottles of any shape in a very small space, and in a safe and convenient manner. One great advantage attending the use of the rack is, that as the contents of each bottle is consumed, the empty bottle can be replaced at once, so that all risk of loss by breakage is obviated. Another advantage will be recognised in the fact that each rack is made to hold a definite number of bottles (2, 3, 4, 6, 12 dozens, etc.), so that in unpacking (for example) a six-dozen hamper of Seltzer water, the bottles need not be counted; the contents of the hamper, if correct, will exactly fill a six-dozen rack, and, if there is any deficiency, the error will be instantly detected, and the manufacturer or vendor can be at once informed of the deficiency.



GUARDED RACK FOR USE AT SEA.

SCHAFER'S EGG TESTER.

The appearance of an egg when placed between the eye and a strong light indicates its condition so surely, that the operation of "candling" is never neglected by thrifty housewives of the old school. But the candling of eggs requires a practised hand and an experienced eye, and is too troublesome a process to be regularly adopted. Hence the sickening discovery of a foul egg is not uncommon at the breakfast table, and the spoiling of batter and other mixtures is a frequently recurring accident of the kitchen. The pretty and scientific invention for which Mr. Schäfer has obtained Letters Patent, renders the testing of eggs such a simple operation, that henceforth no one ought to be annoyed by eggs of doubtful freshness or decided foulness. The new egg-tester is simply a cubical box, with central funnel-shaped openings in two contiguous sides, opposite which a plane mirror is set at an angle of forty-five degrees. On looking into the box through either hole, the image of the other hole reflected by the mirror appears directly opposite; but if an egg be put into the hole that is uppermost, the light transmitted by it forms a sharply defined disc. If the egg be fresh the illuminated circle will be clear; if it be infected the disc will be cloudy; and if it be foul its image will be appropriately dark and unsightly. The instrument may be used by daylight or candlelight, and as the whole of the light reflected by the mirror is admitted through the substance of the egg, any impairment of the translucency characteristic of freshness, owing to physiological or chemical changes, is plainly indicated in the disc.



VEGETABLE PARCHMENT PRESERVE COVERINGS.

Messrs. Thomas De la Rue & Co. are now supplying vegetable parchment, cut into suitable sizes for jar-coverings, in small packets, and as this cheap and efficient substitute for animal membrane is rapidly coming into general use we advise our readers to add these preserve coverings to their sundry wares. The vegetable parchment is in many respects superior to bladder for excluding air and moisture from preserves, and is much cheaper than the commonest description of skin. It is inodorous, and is not liable to promote fermentation, as, unlike animal membrane, it contains no nitrogen; it is less subject to the attacks of insects or mice, and is more elegant in appearance than bladder. Its use is attended with little trouble, for when the material has been wetted by immersion in water it is soft and yielding and can be readily stretched and tied over the jar. As evidence of its fitness for covering preserves we need simply mention that since the year 1859 nearly six million pots have been covered with it by one firm alone. Vegetable parchment is merely unsized paper in which a remarkable physical alteration has been induced by the action of diluted sulphuric acid. Its formation appears to have been first noticed in 1847 by Poumarède and Figuier, who gave to the altered paper the name of *papyrin*. The discovery remained, however, without practical application until the year 1857, when it was patented in this country by Mr. W. E. Gaine, a gentleman whose attention had for many years been directed to the improvement of paper used for photographic and other technical purposes. The material was named by Mr. Gaine *vegetable parchment* or *parchment paper*, and is now manufactured on a large scale by Messrs. De la Rue & Co. To insure the conversion of the soft unsized paper—which is familiarly known as blotting-paper, and technically as *water-leaf*—into a tough material resembling animal parchment, many precautions are requisite. The sulphuric acid by which this strange conversion is effected must be of a certain strength, for if it be too weak the paper is dissolved, and if too strong it is charred. The proper degree of dilution is attained by mixing ordinary sulphuric acid of sp. gr. 1·845 with half its bulk of water. On passing the blotting-paper or water-leaf into this diluted acid, it is converted in a few seconds into a gelatinous gummy sheet. This, on being passed into water, in order to remove the adhering acid, becomes within a minute, a tough, elastic, skin-like substance, which, when thorougly freed from acid, is the vegetable parchment of commerce. Freedom from acid is insured by repeated washings in water, and by immersion in a weak solution of ammonia, which converts any slight trace of acid that may remain into ammonic sulphate. The most curious fact connected with the formation of the vegetable parchment is that the chemical composition of the paper and of the sulphuric acid remains unchanged. The paper gains nothing and loses nothing, and if submitted to chemical analysis after conversion into parchment, it is found to have the exact composition that it had originally. The change is therefore purely a physical one, and must be ascribed to a rearrangement of the molecules of matter of which the paper is composed. The practical difficulties connected with the manufacture of this material on a large scale have been very great, but they have been successfully overcome by Messrs. De la Rue & Co. Mr. Gaine's original patent expired last year, but in consideration of the great merit of the invention and the expenses incurred in working it, the Judicial Committee of the Privy Council advised that the patent should be prolonged for five years dating from December last

THE MONTH

PROPOSED AMENDMENT OF THE PHARMACY ACT.

CONFERENCE BETWEEN THE PHARMACEUTICAL COUNCIL AND THE EXECUTIVE COMMITTEE OF THE UNITED SOCIETY.*

This important meeting took place at the rooms of the Pharmaceutical Society, on Tuesday, April 21, 1868.

Mr. Sandford, the President of the Pharmaceutical Society, commenced the proceedings by observing that they had met to confer upon certain alterations proposed by the Executive Committee of the United Society in the revised Pharmacy Bill.

Mr. Buott inquired if there were any prescribed form of procedure, and upon being informed that there was no definite arrangement, he suggested that the paper written by himself, as the Secretary of the United Society, setting forth the proposed amendments should be read by the Secretary of the Pharmaceutical Society, and the amendments considered seriatim.

The first proposition, that the letter and word "D and" in Clause 4, line 7 be omitted, was agreed to.

In reference to Clause 6, it was understood that the Council would have the power under the Act to institute Local Boards of Examination anywhere in England and Wales.

The amendment to Clause 10, "that two letters, both being registered, instead of one—one at six months, the other at five months later date—be sent," was adopted.

---

* Communicated by the Secretary of the United Society.

Upon the proposal that the word "entitled" in Clause 19 be substituted for the word "eligible," an animated discussion ensued.

The PRESIDENT said that the word "eligible" had been used by the lawyer in revising the Bill, as being more technically correct, and as the means of rejecting improper characters as members of the Society.

Mr. ANDERSON insisted upon the amendment. There had been a compact between the two Societies, and the President of the Pharmaceutical Council had acknowledged that there could be no objection to the words "the right of" being substituted for the words "eligible for." That being the understanding at the first Conference, and no other understanding having been arrived at, the United Society would stand by the original agreement.

Mr. BUOTT, jun., reminded the Conference that the Clause with the word "entitled" would still afford the Council ample protection against the intrusion of improper characters, so long as the right or title to election was contingent upon the bye laws of the Pharmaceutical Society, and there was no appeal for such characters against their rejections, except by "mandamus to show cause," which could be answered by reference to such bye laws.

Mr. EVANS, Mr. CARTEIGHE, and other members of the Council thought there was no contract at the first Conference binding on the Pharmaceutical Society.

Mr. BUOTT said, if the matter was not one of contract for the Pharmaceutical Council, neither was it one for the Executive Committee; but it was at any rate one of mutual interest, and as there did not appear to be any likelihood of agreement, he proposed that the question of substituting the word "entitled" for the word "eligible" should be left to the President of the Pharmaceutical Council and Mr. Anderson, with the aid of the respective solicitors of the two Societies, to determine. After a few remarks on both sides, this was agreed to.

The proposition, under Clause 19, affecting assistants, that at lines 11 and 12 the words "according to the bye-laws thereof" be expunged, and that the following be added—"and such associate shall, upon entering into business, be a chemist and druggist, within the meaning of this Act, in accordance with Clause 3."

The PRESIDENT said the question was one of much importance to the Pharmaceutical Society, and he did not see how they could agree to the amendment.

Mr. ANDERSON said there was a very strong feeling in favour of this amendment, and he was afraid that if it was rejected, it would lead to counter action, and endanger the Bill.

Mr. CARTEIGHE was of opinion that, by admitting registered assistants, on coming into business, to membership with the Pharmaceutical Society, they would lift them above the heads of the associates of that Society, and thereby inflict an injustice upon the associates.

Mr. BUOTT said if such were to be the result, there would be some injustice, but it was not so. The fact was that neither associates nor assistants were admissible until they went into business; but on registering as chemists and druggists, they ought to be admissible alike, so that on becoming members, they might be equal, except that he who had passed his examination would be professionally superior to him who had not, exactly as a pharmaceutical chemist was professionally superior to unexamined members by virtue of his examination.

Mr. ANDERSON, jun., Mr. BUOTT, and other gentlemen strongly urged the desirability of the Council conceding this point to the assistants.

Mr. CARTEIGHE energetically opposed it, and considered that if assistants could become members without examination, it would discourage associates who had taken the minor examination from proceeding to the major as a means of membership. Mr. Carteighe then explained the circumstances which led to the resolution upon this subject at the last annual meeting of the Pharmaceutical Society, and the alteration in the revised Bill.

Mr. BUOTT here rose, and said—Mr. President, and gentlemen, I have received letters from various associations of our Society—especially one from Peterborough—urging it upon me, as a duty, to plead the cause of the assistants at this Conference. Permit me then to say a word or two for the right of those chemists and druggists who are assistants to political equality with chemists and druggists who are in business. I feel it my duty to do so, because it has not yet occurred either to the Council of the Pharmaceutical Society or to the Executive of the United Society to consult the assistants for whom they propose to legislate. To legislate for them without consulting them would be unjust, for Englishmen of every class, from the peer to the peasant, have a constitutional right to a voice upon all matters affecting their interests. I have from time to time been made familiar with the various arguments in favour of subjecting present assistants to examination as a condition of membership; but so weak are they that to formally refute them would be a waste of time. The primary argument in favour of the right of existing assistants to be members of any institution legalized for the regulation of their trade on entering upon business, is firmly based upon the vested interest they have already in the trade. When their fathers or guardians paid their premiums, and they themselves contracted to undergo a certain service, they acquired a proprietary interest in the trade, and became chemists and druggists by virtue of their relation to it, just as a boy is prospectively entitled to be a man. Will any one say that because a man was once a boy, he shall not, on arriving at man's estate, be entitled to all the rights of manhood? Then why should an assistant, on entering business, be denied any right appertaining to his trade? Hitherto, there has been no political distinction between principals and assistants; therefore, if you establish a governing body of the trade, of which principals shall be members, existing assistants, on becoming principals, have a right to membership too. That right they have bargained for and paid for, both in money and in service. The principle of political equality is clearly set forth in the objects, rules, and proceedings of our Society. In our prospectus, we say the Society is formed "to promote and protect the interests of the trade." In the very first rule, we define what we mean by the trade, which we declare to consist of "chemists and druggists, with their assistants and apprentices;" and in all our proceedings, we have adhered to that rule. This doctrine of political equality was urged upon the attention of Sir George Grey, when Secretary of State, as an essential principle of our Society; we have advocated it in all our circulars to the trade, and, to show you that the Pharmaceutical Council, and even the Pharmaceutical lawyer, agreed with us a year ago, I refer you to the 7th Clause of the Bill, before it was altered, which says—"Every person who, before the passing of this Act, has been actually engaged as an assistant, shall be entitled to be registered as a chemist and druggist under this Act;" and that there should be no mistake, it is added in the 20th Clause—"Every person duly registered as a chemist and druggist shall have a right to be elected a member of the Pharmaceutical Society." And, lastly, to put the right of assistants, as registered chemists and druggists, to membership beyond doubt, I refer you to the declaration of the President of the Pharmaceutical Society at the last Conference, who, on being asked whether there could be any objection to the words "the right to be elected," instead of the words "elegible for election," as then proposed, said, emphatically, "Certainly not." Why, then, are the Pharmaceutical Council less liberal now than they were twelve months ago? If they were determined to jib against the times; if it were their pleasure to retrograde, whilst the world was progressing; if they wished to go to sleep, they might have done so without any serious consequences; but seeing that the spirit of the Conference was progressive, and there was a manifest desire to render the Bill, if possible, *more* liberal, it was both unwise and unfair to make it *less* liberal than it was before the Conference took place. I said this doctrine of equal right was advocated in our circulars. I hold in my hand a circular, to which the Executive Committee set their seal, by recording their approbation of it upon the minutes of their proceedings. This circular says—"It is of the greatest importance that every outside chemist and druggist, every assistant, and every apprentice should know that if they become members of the United Society, they will possess all the evidence requisite under the new Pharmacy Act, as originally framed and agreed upon, to entitle them to registration as chemists and druggists, to exemption from jury service, and to election as members of the Pharmaceutical Society." Of the 3,000 members of our Society, 1,000 may be assistants. Those assistants will have paid at least £1,000 to our funds upon the express condition that they should have common rights with employers under the Pharmacy Bill, or, indeed, any Bill to regulate the trade; and if the Executive of the Society give their sanction to a Bill depriving assistants of such rights, they will be legally and morally bound to refund every penny they have received from them. I might add much more, but I now implore you, gentlemen of this Conference, to do justice to that large and important class—the assistants and apprentices, who will follow you in your businesses, and become the chemists and druggists of the coming generation. By the many pledges of fidelity you have given them, and by the faith they have reposed in you, in the name of that heaven-born precept, which is the only standard by which our conduct should be regulated—"As ye would that men should do unto you, do ye even so unto them,"—I beseech you to be just to those young men.

The PRESIDENT then said, suppose that, instead of altering the Clause as proposed by the Executive Committee, Clauses 19 and 21 be altered as follows: in Clause 19, at line 8, after the words "Pharmaceutical Society," read "and any chemist and druggist registered under Clause 4 of this Act;" and then continue in Clause 21, from the word "Act," in line 2, with the words *or who* before the words "by reason of having obtained," etc. By this alteration, assistants and apprentices will acquire all privileges and rights as enjoyed by assistants and associates of the Pharmaceutical Society.

Mr. MATTHEWS, Mr. HEPPELL, and Mr. BETTY replied that the propositions would meet with the full approval of the district associations of the United Society.

Mr. ANDERSON, referring to the 8th Clause of the Bill, wished to ask the President whether the Council would consent to a clause for compensation to Mr. Buott being introduced in the Bill. The President replied that the Council could not consent to introduce such a clause; but, in answer to a further question from Mr. Anderson, he said that, had he been a member of an institution for which Mr. Buott had done as much as he had done for the United Society, he should have felt it his duty to do all he could to secure compensation for him.

A cordial vote of thanks to the President terminated this important and satisfactory Conference.

UNITED SOCIETY OF CHEMISTS AND DRUGGISTS.

EXECUTIVE COMMITTEE MEETING, APRIL 9, 1868.

Present,—Messrs. Betty in the chair, Anderson, Cox, Heppell, Myers, and Buott, jun.

The Secretary introduced the business of the meeting by stating that, in accordance with his instructions, he had furnished the Pharmaceutical Council with a copy of the proposed alterations in the Amended Pharmacy Bill, and requested a conference upon them, and that he had received the following communication from the Pharmaceutical Council:—

"April 1, 1868.

"SIR,—I am requested by the President to inform you that the Parliamentary Committee will meet to-morrow, Thursday, at 4 p.m., for the purpose of receiving the deputation referred to in yours of the 16th ultimo.

"I am, your obedient servant,
"ELIAS BREMRIDGE, Sec."

Upon receipt of which, Mr. Buott immediately replied to Mr. Bremridge as follows:—

"April 1, 1868, 6.20 p.m.

"SIR,—I find upon my desk a letter from you stating that the Parliamentary Committee would receive a deputation from our Executive Committee to-morrow afternoon. Permit me to remind you that my letter of 16th ultimo spoke of a conference *with*, not a deputation *to*, the Pharmaceutical Council.

"Having had instructions to call together our Executive Committee whenever I might receive the answer of the Pharmaceutical Council fixing the time for a conference, I beg to say that it will be impossible to send notices so as to give gentlemen an opportunity to make their arrangements to attend Committee, and also to be in conference with your Council, within the time prescribed.

"I am, your obedient servant,
"C. BUOTT, Sec."

Mr. Buott again wrote to Mr. Bremridge as follows:—

"April 4, 1868.

"SIR,—Referring to my hurried letter of 1st inst., permit me now to add that there will be a meeting of the Executive Committee on Thursday next, and I shall be happy to inform that meeting of any time appointed by the Pharmaceutical Council for the conference, with due regard to mutual convenience.

"I am, your obedient servant,
"C. BUOTT, Sec."

In answer to this letter, Mr. Bremridge wrote:—

"April 8, 1868.

"SIR,—In reference to the proposed conference as to the amendments suggested in yours of 16th ultimo, I have to inform you that I understood that your Executive would have met on Thursday last, and hence my note of 1st inst.

"Pending the now uncertain position of Pharmaceutical legislation during the present session of Parliament, I am unable, in the absence of our President, to name a day for the consideration of the amendments referred to, but you may inform your Committee that I will arrange for the interview as soon as anything definite is known as to future action.

"I am, yours obediently,
"ELIAS BREMRIDGE, Sec."

Considerable conversation ensued upon the reading of this correspondence, and Mr. Buott was instructed to write again to the Pharmaceutical Council to request that, without reference to any other consideration or subject whatever, they would appoint a day for the conference without delay.

On the minutes of the previous Committee meeting being read, Mr. Betty objected to a resolution, that it was not accurately stated, and urged the meeting to adopt certain words which, in the opinion of other gentlemen, would have the effect of binding the Society to inaction, whether the Pharmaceutical Council agreed to the amendments or not. After some discussion, Mr. Anderson moved, and Mr. Heppell seconded, the proposal that the consideration of the minutes be adjourned *sine die*. Thanks to the Chairman closed the meeting, C. BUOTT, Sec.

EXECUTIVE COMMITTEE MEETING, MAY 7, 1868.

Present,—Mr. Henry Matthews; Past-President in the chair; Messrs. Anderson, Mellin, Nunn, Betty, Pass, and Buott, junr.

The minutes of the former meeting were read and confirmed.

A report of the proceedings of the conference between the Council of the Pharmaceutical Society and the Executive Committee of the United Society was read and ordered to be forwarded to the editor of the CHEMIST AND DRUGGIST, with a request for publication.

The draft of the proposed Annual Report of the Society to the members and the trade was brought forward by the Secretary and was agreed to by the Committee.

The appointing of the Annual Meeting and Festival was then brought under consideration, and it was understood that the meeting should be held towards the latter end of June, and that the festival should take place at the Crystal Palace, if practicable, on which occasion the Committee will be glad to be joined by as many members of both Societies as possible, to celebrate the cordial understanding now subsisting throughout the trade.

To render the meeting successful, the Committee expressed a wish to receive the names of gentlemen in town and country willing to act as stewards, to which office there would attach no responsibility beyond the price of tickets, which was fixed at six shillings for ladies and seven shillings and sixpence for gentlemen.

All communications in reference to the dinner and festival to be addressed to the Secretary, 18, New Ormond Street, W.C.

LAW AND POLICE.

CRIMINAL EMPLOYMENT OF SAVIN.

Martha Wright, an old woman, seventy-three years of age, was tried at the late Birmingham Borough Sessions with having attempted to supply a noxious drug called *Juniperus Sabina* to a young girl named Mary Ann Meadowcroft, for the purpose of procuring abortion. The jury having returned a verdict of guilty, the Recorder, in passing sentence, said she was a very dangerous woman. It would be his duty to mark the sense of the Court very strongly. Upon her misconduct he should not say much, but there was no doubt that she had been carrying on that trade for many years. The sentence of the Court was that she should be sent to prison for two years.

BURGLARY AT CLIFTON.

On the 24th ult. the premises of Mr. Hodder, chemist, No. 18, Triangle, Queen's-road, Clifton, were burglariously entered. It is supposed that they were disturbed in their operations by the arrival of an officer of the 2nd Gloucestershire Engineers, who occupies a portion of the house, and returned home late. The thieves cleared the larder, and carried off a few articles of apparel.

DIVORCE CASE.—ANDERSON *v.* ANDERSON.

This case, which came before Sir J. P. Wilde on the 29th ult., was the wife's petition for dissolution of marriage on the ground of the husband's cruelty and adultery. There was no defence. The marriage took place in 1851, and the husband carried on the business of a chemist and druggist in the City. The only feature worthy of notice was the conduct by Mrs. Anderson of her own case. Standing in front of the Queen's counsel's table, she briefly, but clearly, stated the objects of her petition, called her witnesses (in whose examination she was materially assisted by the Court) in due order, gave her own evidence in a collected manner in support of the charge of cruelty, and obtained a decree nisi with costs. Other ladies have occasionally made applications of a formal character to the Court, but Mrs. Anderson is the first lady who has conducted a suit to a successful issue.

CHARGE OF FRAUDULENT CONSPIRACY.

Thomas J. Jones, of Newport, chemist and druggist, and William Barnes, of Hempstead, shipbuilder, have been committed to take their trial by the Gloucester magistrates on the charge of unlawfully conspiring to obtain from Mr. Peter McEwen, a bill for the payment of £100 with intent to cheat and defraud.

BANKRUPTCY.

W. WILLIAMS, ASHBOURNE, SURGEON.

This bankrupt came up for his last examination and discharge before Mr. Registrar Hill, at Nottingham, on the 28th ult. Mr. Tomlinson, who represented the trade assignee, stated that there was no opposition, and the bankrupt therefore received his order of discharge.

GEORGE FLETCHER, SNEINTON, DRUGGIST.

This bankrupt came up for his last examination and discharge before Mr. R. Wildman, Judge of the Nottingham County Court, on the 28th ult. No creditors appeared to oppose, but the Registrar informed the Court that he had received a letter from one of bankrupt's creditors, expressing a hope that he might not be allowed to pass. His Honour said he did not mean to say there was fraud in this case, but it was rather suspicious when the principal debt was owing to the bankrupt's father, but as no creditors appeared, he should not go into it, and granted bankrupt his order of discharge.

JOHN EDWIN DAVEY, BIRMINGHAM, SURGEON.

A meeting for the order of discharge of this bankrupt, adjourned from the 9th of March, was held before Mr. Registrar Tudor, at Birmingham, on the 24th ult. Mr. Rowlands appeared for the assignee, and Mr. Hodgson for the bankrupt. At the examination on the former date, the balance-sheet gave the following account of bankrupt's affairs:—Creditors unsecured, £1,081 16s. 2d.; creditors secured, £210; liabilities on bills discounted, £35; creditors to be paid in full, £46. Assets: Good debts, £96 13s. 9d.; doubtful, £10; bad, £14 15s.; property given up, £25; property in the hands of guarantees of creditors holding security, £100; deficiency, £1,141 2s. 5d. Bankrupt had, up to January of last year, carried on business at Bolton, in Lancashire. In that month he entered into an agreement with the administratrix to the late Mr. Raun, surgeon, of Birmingham, to purchase that business for £600. He was to pay £200 down, £50 in three months, and the remainder of £350, on joint security. He paid the £200, and possession of the practice was given to him on the faith of providing security in a few days, and that not being satisfactorily provided, Mrs. Rann issued a writ against bankrupt for the £50. Bankrupt then brought an action against Mrs. Ranu, and both actions were referred to the arbitration of Dr. Bell Fletcher, who heard the evidence, and made his award in favour of Mrs. Rann. Bankrupt shortly after that filed a petition in the Birmingham Bankruptcy Court. The adjournment was made to enable the assignee to get possession of the premises occupied by bankrupt, and if possible to find a surgeon who would purchase the practice. Mr. Rowlands now informed the Court that the bankrupt had done what was required of him, and given up possession of the premises, but the assignee had not been fortunate enough to find a gentleman to purchase the practice. Mr. Hodgson, on behalf of the bankrupt, applied for his discharge, which his Honour granted.

J. B. DAVIES, CHEMIST, GREAT BRIDGE.

A meeting for last examination and discharge of this bankrupt, who resides at Great Bridge, was held before Mr. Registrar Tudor, at Birmingham, on the 24th ult. Mr. Griffin appeared for the trade assignee, and stated that bankrupt had filed his balance-sheet, they had realised all of the estate—a very fair sum, and therefore did not offer any opposition. Bankrupt accordingly was discharged. Mr. Hodgson then made an application to the Court under a section of the Act of 1849, for a portion of the premium paid by an apprentice of the bankrupt to be returned. £60 had been paid, and nineteen months remained to serve, and (as Mr. Hodgson was instructed) the bankrupt had not done his duty by the apprentice. He therefore applied that £20 be returned to the apprentice. Mr. Griffin said he thought the allowance of £20 was not too much to ask for. The Registrar accordingly ordered the sum of £20 to be paid out of the estate to the apprentice.

J. F. DICKSON, LEICESTER.

There was a meeting for the last examination and discharge of this bankrupt, a manufacturer of chemicals held before Mr. Commissioner Sanders, at Nottingham, on the 5th inst. The bankrupt did not appear, and Mr. Maples, who represented the trade assignee, informed the Court that the order made by his Honour for fuller particulars of the bankrupt had not been complied with, and the bankrupt had stated to the assignee, that he had done all he could to comply with it, and that he (bankrupt) intended to emigrate to America. Mr. Smith, the trade assignee, having proved these facts in evidence, the Commissioner adjourned the case *sine die*, granting a fortnight's protection, on the application of the bankrupt.

ACCIDENTS.

DEATH FROM THE ACCIDENTAL IGNITION OF A LINIMENT.

A SINGULAR and fatal accident from the ignition of a liniment has recently occurred at Liverpool. An old man named Peter Bragau, being troubled with rheumatism obtained a colourless liniment which he gave to his wife, and asked her to rub it on one of his hips. She poured some of the liquid upon her hands, and after rubbing her husband for some time, in order to increase its efficacy she warmed her hands at the fire. The liquid on her hands became ignited, and she was severely burned. Her husband approached to render her assistance, and the liquid on his hip became ignited also; his clothes were burned, and he sustained such serious injuries that he died in the Northern Hospital a few days after the accident.

TWO HORSES KILLED BY OIL OF VITRIOL.

On the 22nd ult., at Alfroton, Derbyshire, Charles Ottewoll, a cartor in the employ of Messrs. Simons, manufacturing chemists, Little Chester, was descending Highland-hill in charge of two horses and a wagon loaded with oil of vitriol, when from some unexplained cause the vehicle was overturned, and its contents were scattered about the ground. Both the horses were dreadfully burned, and died shortly afterwards in great agony.

GOSSIP.

The trustees of the British Museum have appointed Dr. Cobbold, F.R.S., to hold the Swiney Chair of Geology for the next term of five years, and they require that the first annual course of twelve lectures be given in Edinburgh.

In the House of Commons, on Wednesday last, Mr. Ewart moved the second reading of the Weights and Measures (Metric System) Bill, and explained that it was similar in its character to the bill he had introduced in former years, and the principles of which had on more than one occasion received the sanction of the House. He urged that inconvenience and confusion arose from the difference in the weights and measures used in different localities, and said that all future difficulty would be obviated by the adoption of the French metric system. He added that most of the countries on the continent had adopted the system.

Mr. Graves seconded the motion, which was carried by a very large majority.

Her Majesty's Government, with a view of constituting a separate Department of Science and Art for Ireland, analogous in its constitution to the existing Science and Art Department in London, and of amalgamating, as far as possible, all existing institutions in Ireland receiving State grants for science or art, have appointed a commission to report on the best means of carrying out this object. The commission will be composed of the following gentlemen:—The Marquis of Kildare; the Rev. Dr. Haughton, Fellow of Trinity College, Dublin; the Very Rev. Dr. Russell, President of Maynooth; Col. Laffan, Royal Engineers; G. A. Hamilton, Esq., Secretary to the Treasury; Professor Huxley, F.R.S.; and Captain Donnelly, Royal Engineers, who will also act as secretary.

Four scholarships have lately been given for proficiency in Natural Science at Cambridge: one in Trinity College, of the value of £80 per annum, to M. R. Pryor,—two in St. John's College, £50, to Garrod and Edmunds,—and one in Downing College to Saunders. The competition for all these was open, in the case of the Trinity scholarship, to all undergraduates of Oxford and Cambridge; and in the others, to students who were not members of the University. In addition to the above, a scholarship of the value of £60 per annum is offered by St. Peter's College. The examination (in Botany, Chemistry, and Comparative Anatomy) will commence on Tuesday, June 9th, and will be open to any students who are not members of the University or who have not commenced residence. Candidates must send their names before June 9th to the Rev. J. Porter, St. Peter's College, Cambridge, from whom any further information may be obtained.

We have to record the decease of William Bowker, Esq., chemist and druggist, of Deansgate, Manchester, who died on the 6th ult. He was an alderman of the corporation of the city, and was on the 9th of November, 1865, elected unanimously to fill the civic chair, and discharged the duties of chief magistrate with a dignity, kindness, and courtesy that was peculiarly creditable to himself and satisfactory to the council. The deceased gentleman was a consistent member of the Church of England, and in politics he was a Conservative, though he never took a very active part in political affairs; but he never allowed either his religion or his politics to interfere in conferring any little benefit it was in his power to bestow. His remains were interred at Sale Cemetery on the 11th ult., and nearly the whole of the corporation testified their respect by attending the funeral of deceased.

The Nottingham Union and their Drug Contract.—At the meeting of guardians of this Union on the 7th ult., Mr. Howitt (the chairman) having stated that the contract for drugs having on many occasions been exceeded—in some instances to the amount of the contract—the house committee thought it desirable to pass a resolution to the effect that all surgical instruments and appliances, and all drugs and medicines necessary for the use of the surgeons and dispenser be ordered through the master of the house, according to the consolidated orders of the Poor-law Board, and the matter was now brought before the board for confirmation. Mr. Sylvester moved, and Mr. Gregory seconded, a motion to that effect, and it was unanimously adopted. It was afterwards suggested by a guardian that future advertisements for supplies of this kind should state that in case the contract was exceeded the same price should be charged for the overplus.

The Birmingham General Dispensary.—The honorary medical officers of the Birmingham General Dispensary, an institution of great usefulness in the hardware metropolis, considering that their services were entitled, after a long period of years, to some substantial recognition, appealed to the managing committee for a consideration of the matter. The committee had declined to comply with the request and the medical officers resigned their appointments. At the annual meeting of the institution held in February last the subject was brought before the subscribers, who referred it back to the committee, with instructions to reconsider the subject. On the 29th ult. a special meeting of the governors of the institution was held to consider the committee's report, and the report of the medical staff. After a great deal of discussion the committee's report, which rejected the idea of giving honorariums, was passed by a majority of forty-three to twenty-one. In consequence of the adoption of the report the physicians and surgeons informed the chairman of the committee that their duties would terminate on the 6th inst. Mr. Howard Luckcock, the chairman of the committee, has also resigned within the last few days.

GAZETTE.

BANKRUPTS.

Chittenden, John Franks, Lee-park, Lee, surgeon.
Fuller, Harry Percy, Maldon, veterinary surgeon.
Hoffman, Octavius William, Harborne, Stafford, surgeon.
Holden, William, St. Helen's, manufacturing chemist.
Key, William Drake, Lincoln, chemical manipulator.
Lobb, Harry William, Sackville-street, Piccadilly, surgeon.
Slater, Edmund Earnest West, Shieldfield, dealer in German yeast.
Sadleir, Richard William Ralph, Rainford, manufacturing chemist.
Webb, Henry, Great Sampford, veterinary surgeon.
Ward, George, Oxford-street, dentist.

BANKRUPTCY ANNULLED.

Taleen, John Axel, Burdett-road, Limehouse, drug grinder.

PARTNERSHIPS DISSOLVED.

Bowen, T., J., H., and E., Swansea, chemical manufacturers.
Hough and Hand, Grantham, chemists.
Morgan and Hughes, Bromley, surgeons.
Norfolk and Bulmer, Dover, veterinary surgeons.
North and Raper, Leeds, manufacturing chemists.
Rayner and Roberts, Pilkington, chemists.
Skinner and Day, Isleworth, surgeons.
Thompson and Felce, Launceston, surgeons.
Tidswell and Heaton, Bradford, dentists.

DECLARATIONS OF DIVIDENDS.

Doughty, J., Liverpool, chemist—1s. 4¾d.
Wild, J., Chorlton-upon-Medlock, chemist and druggist—1s. 10½d.

Stomatitis from Frictions with Citrine Ointment.—It is well known that citrine ointment contains about one tenth of mercury to one of fatty matter; yet it was lately shown, says the *Journal des Connais. Méd. Chir.*, that three frictions with it can give rise to very severe salivation. This was the case with a lady, who, not fancying sulphur ointment for the removal of itch, rubbed in citrine ointment by the advice of a chemist. The gums swelled after the second friction, and the most distressing symptoms of stomatitis set in after the third. We would, however, remark, that very probably the frictions were made over a large surface, and that much of the ointment must have been used.—*Lancet.*

Notes and Queries

Cologne Waters.—The following formulæ are printed in the April number of the American *Druggists' Circular*:—

I.	Alcohol fort. (Cologne Spirits),	10 quarts.
	Oil of lemon	3 fl. oz.
	,, bergamot	1½ ,,
	,, neroli	½ ,,
	,, lavender	3 fl. drachms.
	,, rosemary	2 ,,
II.	Alcohol fort (Cologne Spir.)...	10 quarts.
	Oil of bergamot	2 fl. oz.
	,, lemon	1 ,,
	,, lavender	½ ,,
	,, neroli	2 ,,
	,, melissa (balm)... ...	2 ,,
III.	Alcohol (90 p. c.)	2 quarts.
	Oil of bergamot	1½ fl. oz.
	,, lavender	½ ,,
	,, lemon	1½ ,,
	,, orange peel	1½ ,,
	,, petits grains	2 fl. drachms.
	,, neroli	1 ,,
	,, rosemary	½ ,,
	Absolute alcohol (Cologne Sp.)	6 fl. oz.
IV.	Alcohol (Col. Spir.)	14 quarts.
	Oil of lemon	2 fl. oz.
	,, bergamot	1 ,,
	,, lavender	2½ ,,
	,, cajeput	2 fl. drachms.
	,, orange peel	2 fl. oz.
	,, neroli	1 ,,
	,, petits grains	2 fl. drachms.
	Orange flower water	1 pint.
V.	Alcohol...	10 quarts.
	Oil of bergamot	3 fl. oz.
	,, lemon	½ ,,
	,, lemon (balm)	½ ,,
	,, lavender	2 fl. drachms.
	,, neroli	2 ,,
VI.	Alcohol	10 quarts.
	Oil of bergamot	3 fl. oz.
	,, lemon	1 ,,
	,, lavender	1 ,,

The following formulæ for inks and pomades are from the same source:—

Black Ink—Infuse Galls, bruised ... 20 parts, in
Boiling water ... ...240 parts.

Let it stand for some hours, strain and add a mixture of

Extract of indigo,	
Copperas, of each ...	10 parts.

and stir until the latter be dissolved; add afterwards,

Burnt lime in powder ...	4 parts,

and let it stand for several hours. Decant, strain, and add, well stirring,

Gum arabic	5 to 8 parts,
Sugar	3 parts,
Oil of cloves	one-twentieth part.

Indelible Ink (Redwood)—Macerate for an hour under frequent shaking

Nitrate of silver,		
Pure Cr. of Tartar, of each ...	24 parts, in	
Aqua Ammoniæ	96 ,,	Then add
White sugar	6 ,,	
Gum arabic	10 ,,	
Fine lamp black	½—⅔ ,,	
Water	96 parts, previously mixed.	

This requires no mordant.

Pomade Tonique—I. Fuse in the water-bath:

Beef-marrow	3 pounds,
Lard	2 pounds,
Oil of almonds	½ pound,
Balsam of Peru	½ ounce,
Powdered calisaya	2 drachms,

and continue to stir for half-an-hour. Then strain and add

Oil of cloves	½ ounce,
Otto of roses	6 minims,

and stir until the mixture congeals.

II. Fuse together:

Butter of cacao	½ pound,
Oil of almonds	¼ pound,

and when the mixture begins to harden add

Cologne water	½ fl. ounce,

in which have been suspended

Tannic acid	½ ounce,
Sulphate of quinia	3 drachms,

and lastly add

Balsam of Peru	2 drachms.

Limes and Glycerine (*C. Younge*).—We believe that the "lime-juice" and "glycerine" in this preparation are simply equal parts of almond oil and lime-water.

Soda Crystals.—*H.* sends us the puzzling query: "Can any of your subscribers suggest how to prevent melting of soda crystals in transit through hot climates?"

Jalapine (*J. P. Plowden.*)—According to Mr. Squire, the "jalapine" now so largely prescribed, is nothing more than the Resin of Jalap deprived of its colour by animal charcoal. It may be given in the same doses as the officinal resin; and being in a state of fine division, is less likely to irritate the bowels.

Bleaching Cotton Seed Oil.—W. R. Fee, of Cincinnati, Ohio, communicates to the *Scientific American*, the following recipe:—Use one gallon of English caustic soda, in a solution of about forty degrees of strength, to about twenty gallons of crude oil. The oil, previous to being mixed with the solution, must be heated to about 90°. Stir constantly while adding the cold solution. If the oil is not now sufficiently light, add more of the solution to bring it to a light yellow or straw color.

Hop Poultice.—Dr. E. O. Newton, in the American *Eclectic Review*, furnishes the following instructions for preparing and applying this poultice:—"Place a sufficient quantity of hops (the very freshest attainable) to make two poultices, into a deep vessel, such as a saucepan or large-sized skillet; add sufficient quantity of vinegar-and-water, equal parts, to keep them from burning, while heating; so that when sufficiently hot for use the hops will be only moist, and not capable of wetting of everything that comes in contact with the poultices. A large-sized flannel bag, made with one end left partly opened, can be pinned up ready for use when the hops are in. While one poultice is cooling, get another one ready with which to replace the first. The temperature of the poultice should be higher than the parts to which it is applied. When the hops are ready to be put into the bags, sprinkle over them a little corn meal, to render them more adhesive and more easily handled. The poultice having been applied to the part on which it is to be used, place around it a piece of old flannel to keep it on. In this manner hop poultices can be kep on for hours without even soiling the clothing."

Correspondence

COPYRIGHT IN TITLES, LABELS, AND TRADE ADVERTISEMENTS.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

Dear Sir,—If you will call the attention of the trade to the Law of Copyright, as applied to original and proprietary papers, labels, and titles, you will be doing good service, and save much litigation and expense, for there is a great want of knowledge in respect to this matter.

For instance, we registered the title of our New Transparent Cement "*Coaguline.*" A chemist at Leeds, struck with its adaptability for a purpose of his own, began to advertise a "Great Coaguline Composition" for cleaning boilers, and had many expensive circulars printed in reference to it. Our attention being called to this, we wrote to him, acquainting him with the transgression, to which he responded in a courteous and gentlemanly manner, withdrawing the word complained of, and confessing his ignorance on the subject.

The next case was that of a man in a respectable position at Lancaster, who, as you will see from the handbills sent herewith, took the liberty of copying word for word our trade circulars, merely altering the title of the article to which they referred, thinking thereby to evade the penalty. But as we had lodged our circulars at Stationers' Hall, he, to avoid proceedings, was permitted to sign the enclosed undertaking to refrain from copying or imitating our advertisements, and to destroy all handbills or labels complained of, on or before the 1st of April.

You will feel, with us, that it is most unpleasant to have cases of this character, and if, through your influential journal, you will call attention to the law as applied to copyright literature, trade marks, and titles, it will prevent much unpleasantness, as from the inquiries we receive respecting the method of proceeding in registration, we are satisfied there is a want of real knowledge in the trade on this important subject.

It is very hard, after expending much labour, study, and expense in introducing an article, be it what it may, to find another man coolly appropriating your property. Sir R. Carden says, in a late judgment (*Graves versus Beal*, piracy of engravings, defendant fined £130), "I do not think it is fair for one man to live on the brains of another, therefore, I think, it a very hard case that one gentleman should be so robbed by another."

Yours respectfully,
Stockport, May 9, 1868. Kay Brothers.

PROFESSIONAL ETHICS.—PRESCRIPTIONS.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

Dear Sir,—Allow me to offer a few remarks upon the question agitated at present in America, viz., "Is it right for a chemist to prepare the same prescription from a medical man repeatedly, without his sanction." The question is a difficult one, and demands the attention of all who have the interests of the profession at heart.

I think, in justice to the professional reputation of the gentleman prescribing, he is entitled in some degree to have control over his prescriptions; but other views must be taken of the question. For instance, a patient may be troubled with periodical bilious attacks, and his medical adviser may give him a prescription to have prepared by his (the prescriber's) *particular and favoured druggist*, one who, in all probability, has to pay his medical patron thirty per cent. on all medicines ordered by him.

Now this considerably interferes with the business of an outside, respectable, and qualified druggist, who is minus all professional patronage. For instance, suppose I commence business in a locality where the members of the medical profession have been previously engaged to the resident druggist. Now, although I am possessed of all business qualifications, and manage to secure a considerable amount of public patronage, yet if one of my customers calls in the advice of a professional M.D., I may expect to be addressed in this style: "Oh, I have to go to your rival Mr. Green, the druggist, as I expect he has a prescription prepared for me, and you know *we are forced* to have all Dr. Black's medicine dispensed at his establishment." Now, sir, I think the proposed change of confining the use of a prescription to the first preparation would, under the present system, be the means of establishing a most unjust monopoly. Prescriptions have often to be repeated, and if the medical practitioner wishes to change his formula, all he has to do is to write a new prescription, give it to his patient, *and allow* him to have it prepared by his own family chemist, *providing he is properly qualified*. No physician is justified in attempting to divert the legitimate custom of one druggist into a foreign channel for the sake of the per-centage he pockets for the amount of medicine he prescribes.

Unless there is a complete reformation in the practice of doctors, as well as in that of druggists, so that physicians may confine their duties solely to their profession, and the druggists to that of pharmacy, there is little hope for things being properly adjusted, and a degrading system of warfare will continue to be carried on by the opposing parties.

I am, sir,
Yours truly,
Hawick, May 2, 1868. J. C. H.

Varia.

PATENTED PROCESS OF PREPARING COFFEE.

In the process of roasting coffee, as ordinarily practised, much of the aroma is dissipated, and the quality of the coffee is impaired. This invention is to obviate these objections. In a suitable vessel place a quantity of olive or other oil, butter, or animal fat, and raise the same to a temperature of, preferably, 400° Fah., whereupon the green coffee is placed therein, and subjected to the cooking or boiling action of the heated oil or material for about five minutes. The coffee is then removed and placed upon a suitable strainer to drain and cool. The coffee being surrounded by unctuous matter during its preparation, the escape of the aroma is prevented; and inasmuch as the oil may be readily kept at the desired temperature during the whole operation, any injury to the quality of the coffee by excessive heating is also prevented. The oil, butter, or other like material, after being once heated, may be used repeatedly for different quantities or batches of coffee. Patented by Benjamin T. Babbitt, New York City.—*Scientific American*.

MICROSCOPICAL EXAMINATION OF DAMAGED AND VALUABLE PAPERS.

The Buffalo *Medical and Surgical Journal* reports the following extract from a lecture delivered by Dr. E. H. Parker, of Poughkeepsie, before the New York Medical Society, the remarks being occasioned by an investigation the Doctor had made in two very interesting cases of forgery, to which he had been called as an expert:—

The first was one in which it was an alleged promissory note, signed by a blind man who had deceased. The gentleman in question had become blind by cataract, but was nevertheless in the habit of signing all important papers. The body of this note was written by a different hand in blue ink, and the name in black ink. The question came up as to whether the body of the said note was written before that of the signature or not.

The paper folded end to end across the middle. Prints of black ink were transferred from the black signature, and were found on the opposite side. In several places the blue and black ink of the dots were in conjunction. It was impossible to tell which was put on last, till a place was found where the bottom of the letter *y* and tip of a letter *h* came together over a dot, and showed the blue ink on top.

The same paper read, "*one day* after my death I promise to pay," etc. It showed clearly under the microscope that it had been written "one *year*," an erasure having been made, and *day* written in.

The other paper was an alleged receipt for 2,000 dollars paid on May 11th. That amount has been paid May 1st, and this alleged payment was denied to have been made. Examination by microscope showed that the first figure 1 of the date was in *brown*-black ink, while the second and the rest of the paper were in *blue*-black ink. Transfer had been made of the *brown*-black ink to the other end of the paper by folding, showing that it was put on last. The two shades of black show only under the microscope; to the naked eye they are alike.

Dr. Squibb, in this connection, referred to the following case:—A number of U. S. bonds were stolen some time since from a party, and their payment stopped. For a long period nothing could be discovered in relation to them. Finally, however, two bonds with the same numbers were found in Wall Street, and it occurred to the parties concerned that one of these must be of the lot that had been stolen. The difficulty was to decide which was the genuine, and it was cleared up by a microscopical examination of the ruled lines upon which the figures were written in red ink. The magnifying glass showed the tracings of the old figures underneath the new, the red ink of the former having been previously removed by a chemical process.

RATS POISONED BY SQUILLS.

The Paris *Moniteur*, noted for its official statistics, has recently favoured its readers with the startling intelligence that there are no less than two thousand millions of rats in France. How the census of these rodents was taken we are not told. Perhaps one of the *collaborateurs* of the *Moniteur* is endowed with the powers of the pied piper of Hamlin. Be this as it may, we are not only assured that this enormous rat population exists, but further informed that, at the lowest computation, these rats destroy property to the amount of twenty millions of francs annually. No wonder that every means should be taken to destroy these animals; but hitherto various poisons, such as nux vomica, arsenic, phosphorus, etc., have failed to keep them under, the births being considerably in excess of the deaths. Recently, however, says this Government paper, an all-potent poison has been found, by experiment, to be very fatal to the rats. It consists of squills (*Scylla maritima*), the bulbous roots of which are used for medicinal purposes. These bulbs, cut into slices, bruised and fried in fat, or ground into powder or made up into balls, are deadly poison to the rat tribe; and in order that the poison may not prove fatal to other animals, it is placed in boxes provided with holes at the sides sufficiently capacious to allow rats to pass in or out, but not larger animals. An almost unlimited supply of squills can be procured from Algeria; so we may expect to hear of a rapid decrease soon of the rats in France.

THERAPEUTIC EFFECTS OF CARBOLIC ACID.

The Dublin correspondent of the *British Medical Journal* writes:—The therapeutic effects of an agent yet *sub judice*—carbolic acid—were under discussion at a recent meeting of our Surgical Society. The treatment of traumatic and operative incisions by carbolic acid was introduced by Mr. Tyrrel, who, having before warmly advocated the practice, now very properly detailed the result of his further experience, which was not in favour of that agent. Carbolic acid coagulates the albumen of the living tissues, like some other caustics; and this seems unlikely to promote the adhesion of freshly cut surfaces. In the same way it destroys minute organic forms, preventing their conveyance to a suppurating surface; and checks the formation of pus-cells. While, therefore, it may be an injurious application to wounds which we wish to heal by adhesion, its utility is undoubted in cases of those which must suppurate. In this case, the vapour of the acid might do as well, its caustic effect on the surfaces being avoided. Many of the members bore testimony to the power of this drug in checking parasitic skin-diseases.

DISINFECTANTS.

M. Bonjean, an eminent pharmacien of Chambéry (Savoy), has published a book on the means of preventing cholera, etc. Of course, his system rests on the use of disinfectants, among which he mentions: charcoal well pounded, two pounds; sulphate of iron, one pound. Two or three tablespoonfuls should be placed in the night vessels used by the sick. The author contends not only that carbolic acid is overrated, but that its virtues are *nil*. This should be noted. Be this as it may, it is perfectly true that fashion and crying-up have an enormous deal to do with the use of disinfectants. We should not, immediately a new one is proposed, forget chloride of zinc, manganate of potash, charcoal, and green vitriol.—*Lancet.*

ARSENICAL MEDICATION IN PULMONARY PHTHISIS.

At a late meeting of the Academy of Medicine of Paris, M. Moutard-Martin read a paper on the value of arsenical medication in the treatment of pulmonary phthisis. He arrived at the following conclusions. 1. Arsenical medication has a very decided effect on pulmonary pthisis. 2. Its action is more efficacious in slow consumption than in the former accompanied by fever. 3. Rapid consumption and granular phthisis are not at all modified by it. 4. In a great number of cases, even in advanced phthisis with hectic fever, the general condition of the patients is favourably affected—at least, for some time, which occasionally is of considerable duration. 5. The modifications of the local lesions only occur at a later date. 6. A certain number of cures may be attributed to arsenical medication; and this method would give more results, if the patients did not too soon consider themselves cured, and if they had more perseverance. 7. To be efficacious, the treatment must be continued for a long time. 8. The arsenic should be administered in very fractional doses. 9. The daily doses of arsenic should not be larger than two *centigrammes* (about one-third of a grain). 10. Arsenic agrees better with patients in the early stages than with those who have reached the stage of true consumption. The most evident action of arsenical medication is one which reconstitutes, and secondarily modifies the pulmonary lesion. However, certain facts proving that arsenic possesses a direct action on the respiratory function, it may have one on the pulmonary tissue itself, and on the tubercle.—*British Medical Journal.*

MAGNETIC PHANTOMS.

Magnetic "phantoms," produced by sprinkling iron filings on a sheet of paper laid on the poles of an electro-magnet, have for some years past been regarded as curiosities, and made the subject of popular demonstration. But it is now known that they have a scientific value, inasmuch as they indicate the condition of the magnet; whether, for instance, the poles are isonomal or antinomal, isodynamic or heterodynamic, with "points consequent" or not, or bifurcate, trifurcate, circular, and so forth. For the experimentalist, therefore, these phantoms are a valuable record, and the more so if they can be fixed. One way of fixing is to use sheets of paper coated with stearine or wax, into which the filings will sink on melting the coat with a hot iron. As it cools the phantom becomes firmly imbedded, and the sheets thus prepared may be framed and glazed for reference. Another, and more elegant way is to impregnate the sheets of paper with ferrocyanide of potassium, to develope the phantom with the fine magnetic iron sand brought from Norway, to pass over it, for a few seconds, a bath of hydrochloric acid, then to shake off the sand, and wash the sheet in water, the phantom then appears, well defined, blue in colour, and permanent; and in this condition a number of sheets may be bound or kept in a portfolio for any length of time.—*Athenæum.*

SAFETY APPARATUS FOR ENTERING FOUL AIR.

M. Galibert's apparatus consists, according to the *Builder*, of an air-reservoir, with two tubes attached, the one for the exhaled air, extending just within the top of the bag, the other for the air to be inhaled to near the bottom. The outer ends of the tubes are connected with a single mouthpiece, and the person using it secures all the advantages of valves (without the danger which might arise from valves being used and getting out of order), by simply placing his tongue alternately on one or the other of the orifices within. Goggles are employed to protect the eyes from irritation, and the nostrils are closed by a small spring clip. M. Galibert's apparatus has been adopted in France by the Ministry of Marine, the Paris Fire Brigade, and by numerous other public bodies and private firms, and it has just been exhibited and tried in London, under the direction of Mr. T. Brown, C.E.

The quantity of proof spirits distilled in the United Kingdom and Ireland, during the year ending the 31st December last, was 23,323,613 gallons. The duty paid amounted to £11,382,594 5s. 7d.

TRADE REPORT.

CHEMICALS.

THE Alkali trade has been very dull since the date of our last publication, and the price of SODA CRYSTALS has declined from week to week without producing an increased demand, either here or in Newcastle. SODA ASH is also obtainable at a lower price. For best white CAUSTIC SODA here 15s. 6d. per cwt. is accepted. BICARBONATE is quiet at 13s. 6d. CHLORATE OF POTASH has been very scarce, and much wanted both for present and forward delivery. It is now steady at 1s. 11½d. per lb. The demand for CREAM OF TARTAR has been improving of late. Early in the past week 79s. was accepted, but 80s. has since been required.

The most noteworthy feature of the trade of the month is the extremely rapid rise of CITRIC ACID. At the commencement of last week it was quoted at 2s. 1d., but its price immediately advanced to 2s. 2d., and from this penny by penny per lb., till at the end of the week 2s. 5d. was reached, at which price sales are still effected. TARTARIC ACID has not made a corresponding move, but a good business is being done in this product at 1s. 1¾d. to 1s. 2d.

In QUININE (Pelletier's) business has been lately done to a moderate extent. BLEACHING POWDER is quiet at 13s. to 13s. 6d. REFINED SALTPETRE is now quoted at 23s. to 23s. 6d., buyers being scarce. CALOMEL is quoted at 2s. 5d.; CORROSIVE SUBLIMATE, 1s. 11d.; IODINE, resublimed 14s. 6d.; MERCURIAL OINTMENT, 1s. 7d.; BLUE PILL, 1s. 9d.; IODIDE POTASSIUM, 11s. 6d.; BROMIDE, 5s. per lb.; BICARB. POTASH, 68s. per cwt.; PRECIPITATE, red 2s. 6d.; white 2s. 5d. per lb. HYPOSULPHITE SODA, 20s. per cwt.; TARTAR EMETIC, 1s. 4d.; VERMILLION, deep 2s. 6d. to 2s. 9d., pale 2s. 9d. to 3s. per lb.

DRUGS.

The principal alterations since our last have consisted in a considerable decline in GAMBOGE, a decline of some importance in MUSK, and a further reduction of the price of IPECACUANHA. RHUBARB is now slightly lower than it has been for some weeks. CAMPHOR, refined, has also become somewhat cheaper. Buyers offer 8s. 3d. for OIL ANISEED, and 5s. 6d. for OIL CASSIA. ALMOND OIL, expressed, is quoted at 1s. 8d., and essential at 38s.; CLOVE at 2s. 6d. OPIUM has realised firmer prices of late, and GUM ARABIC and most other gums have been without material alteration.

OILS.

An improved demand for SPERM led to its being held for £105 at the commencement of the current month, but there are now sellers at £103. The price of COD has advanced to £38 10s. to £39. Other Fish oils have been scarcely inquired for, and quotations have remained stationary.

OLIVE OILS have been in limited request. No sales were reported last week, and stocks are held at the prices quoted last month.

The market for COCOANUT has been steady. From 700 to 800 tons Ceylon sold towards the end of April at £49 on the spot and to arrive; and 100 tons Cochin to arrive at £51 10s. Present quotations are £49 5s. to £49 15s. for Ceylon, and £54 Cochin. The quantity of these two descriptions afloat, according to the latest advices, is 2,001 tons, against 1,529 at the same time last year. On the 17th of April, 228 casks Sydney, ordinary to fine, were sold without difficulty at £44 to £49.

PALM OIL of fine quality has continued scarce, and the lowest quotation for fine Lagos is £40, at which there are but few buyers.

Since our last report was written, LINSEED OIL has been only in moderate request, and quotations have shown a downward tendency. It is now obtainable on the spot in London at £32 10s.

The market for RAPE has lately been very quiet, and £34 cash has been accepted for English brown on the spot. Some transactions are reported in Foreign at £37 for the last four months, and at £38 for the first four months next year. Refined £38 to £38 10s., English £36 10s.

PETROLEUM.—The market has lately been steady, but less active than might have been anticipated at 1s. 5d. for SW American refined on the spot, for July, 1s 5½d. was taken, and sales have been made for the last four months at 1s. 6½d. to 1s. 7d. There has been a good inquiry for REFINED COAL OIL, and a good business done at 1s. 2d. delivered here. NAPHTHA has been difficult of sale at 8d. to 10d. per gallon. Our stock of Refined Petroleum is 31,051 barrels, and the deliveries last week were very small, viz., 316 barrels against 35,897 barrels and 1,012 barrels respectively corresponding week last year.

TURPENTINE.—For American Spirits 32s. is now demanded, but French may be obtained at 31s.

TOBACCO.

According to the Board of Trade returns issued since our last, the movements in March were very similar in amount to those of last year, and the stock is still two million lbs. heavier than in 1867.

Statement for the first three months.

	Importation. lbs.	Home Consumption. lbs.
1868	9,063,113	10,587,405
1867	7,727,963	10,301,124
Incr.	1,335,150	Incr. 286,281

Exportation.

1868	4,404,944 lbs.
1867	5,209,567
Decrease	804,623

Monthly Statement

Of the STOCKS, LANDINGS, and DELIVERIES of the following GOODS at the PORT of LONDON, from Jan. 1 to April 30, 1868 and 1867.

	Stock Mar. 31, 1868	1867.	Landings. 1868.	1867.	Deliveries. 1868.	1867.
Aloes .... casks	2966	2677	852	1271	1106	2001
kegs	79	176	—	67	33	73
gourds	980	707	—	471	773	766
Aniseed, Star ....chests	274	533	—	136	60	180
Arrowroot .... casks	13508	10139	3810	4229	3058	3544
boxes and tins	20614	20351	6447	5239	4941	9227
Balsam .... casks, &c.	245	394	184	261	188	236
Bark, Medicinal, casks and cases	329	444	96	263	73	95
serons, &c.	10494	10211	7839	4458	6110	6670
Bark, Tanners............ tons	83	77	516	60	568	166
Borax................ packages	83	147	2	398	10	360
Beeswax ...... bales and serons	258	232	175	174	164	19
casks and cases	1139	1944	451	1929	699	1483
cakes	412	2205	1714	1537	2717	882
Brimstone................ tons	45	370	—	—	—	—
Camphor .... packages	2085	1828	1464	480	1154	859
Cardamoms .... chests	222	198	238	115	106	180
Cochineal—						
Honduras .... serons	3622	1348	345	2185	1138	1572
Mexican .... ,,	416	147	193	155	477	200
Teneriffe .... ,,	6697	5014	8296	6504	6994	5742
Coculus Indicus ...... bags, &c.	916	804	—	—	74	—
Colombo root .... packages	1994	1668	89	444	427	398
Cream of Tartar.......... casks	239	377	136	126	162	240
Cubebs .... bags	1675	1180	504	2	113	566
Dragonsblood .... chests	108	85	87	19	76	44
Galls, E. I. .... casks and cases	2599	3021	3290	2502	2649	1932
Mediterranean .... sacks	42	101	31	51	59	24
Gum—						
Ammoniac .... packages	195	235	27	22	19	11
Animi and Copal .. ,,	1485	2316	1501	841	1266	2096
Arabic, Barbary .... ,,	146	155	163	144	177	306
Turkey .... ,,	27	249	11	26	46	65
East India.......... ,,	1893	1494	2548	1075	1681	520
Assafœtida .... ,,	123	163	153	—	125	40
Benjamin .... ,,	943	969	525	632	458	481
Dammar .... ,,	1060	1111	163	209	223	59
Galbanum.......... ,,	6	—	6	1	6	1
Gamboge .... ,,	134	127	132	66	71	19
Guaiacum .... ,,	98	101	22	70	8	
Kino .... ,,	216	34	170	4	52	
Kowrie .... tons	1545	1340	722	990	517	918
Mastic .... packages	211	289	—	164	22	61
Myrrh, E. I......... ,,	87	67	135	34	65	28
Olibanum .... ,,	1592	1601	1384	933	992	1411
Sandarac .... ,,	159	241	353	512	333	414
Senegal .... tons	80	52	40	27	30	22
Tragacanth .... packages	29	18	14	2	23	3
Ipecacuanha .... casks and bags	219	52	211	82	115	166
Jalap .... bales	394	254	263	70	123	74
Lac-Dye.................chests	2878	4558	1454	1459	2201	1860
Nux Vomica.......... packages	564	1782	480	1745	274	813
Oil—						
Castor .... casks	89	83	12	1	6	21
cases	381	546	621	272	667	584
duppers and tins	8830	8367	19778	15120	15576	13579
Palm .... tons	658	914	2333	1336	2328	1620
Cocoanut .... ,,	3658	5780	3385	2113	3756	2738
Olive .... casks, &c.	1516	2384	1863	2972	2022	2286
Aniseed.................. cans	244	1097	896	419	541	595
Cassia .... ,,	1527	1554	408	59	366	497
Opium ....chests, &c.	442	207	—	—	no	retrn
Rhubarb ....chests..	901	927	1113	604	819	599
Safflower—						
Bengal .... bales	1560	2183	1593	1548	1718	1574
Bombay............... ,,	88	137	40	—	53	64
Saffron .... packages	10	10	1	—	1	—
Sarsaparilla .... bales	335	896	603	818	604	870
Senna................. bales, &c.	3017	2529	2084	2026	1309	1296
Shellac .... chests, &c.	9532	14996	3652	4897	5946	6148
Sticklac.......... ,,	2723	3914	602	156	683	1329
Terra Japonica—						
Gambier .... tons	4099	2351	6748	3392	4129	2422
Cutch................ ,,	379	403	554	161	600	481
Turmeric .... ,,	622	617	248	578	428	386
Vermilion.......... chests, &c.	52	127	—	108	29	71

Monthly Price Current.

[The prices quoted in the following list are those actually obtained in Mincing-lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.]

	1868. May.					1867. May.				
	s.	d.	to	s.	d.	s.	d.	to	s.	d.
CHEMICALS.										
ACIDS—										
Acetic ....per lb.	0	4	..	0	0	0	4	..	0	0
Arsenious (*see* Arsenic)										
Citric ....per lb.	2	5	..	0	0	1	11½	..	0	0
Nitric .... ,,	0	5	..	0	5½	0	5	..	0	5½
Oxalic .... ,,	0	8	..	0	0	0	9½	..	0	10
Sulphuric ...... ,,	0	0¾	..	0	1	0	0¾	..	0	1
Tartaric crystal .. ,,	1	1¾	..	1	2	1	3	..	1	3¼
powdered ,,	1	2	..	1	2½	1	3½	..	0	0
ANTIMONY, ore......per ton	280	0	..	0	0	200	0	..	220	0
crude ..per cwt	23	0	..	0	0	23	0	..	24	0
regulus.. ,,	44	0	..	45	0	34	0	..	34	6
star .... ,,	44	0	..	45	0	34	0	..	34	6
ARSENIC, lump...... ,,	16	0	..	16	6	16	0	..	16	6
powder.... ,,	7	3	..	7	6	7	6	..	0	0
ASHES (*see* Salts										
BRIMSTONE, rough ..per ton	132	6	..	132	6	132	6	..	0	0
roll ....per cwt	10	3	..	10	6	10	6	..	0	0
flour.... ,,	14	0	..	14	6	13	0	..	0	0
IODINE, dry ....per oz.	0	9	..	0	9½	0	9¼	..	0	9½
IVORY BLACK, dry..per cwt.	0	0	..	0	0	8	0	..	0	0
MAGNESIA, calcined..per lb.	1	6	..	1	8	1	6	..	1	8
MERCURY..... .. per bottle	137	0	..	0	0	137	6	..	0	0
MINIUM, red ......per cwt.	21	0	..	0	0	21	6	..	22	6
orange .... ,,	33	6	..	0	0	33	6	..	0	0
PRECIPITATE, red ....per lb.	2	6	..	0	0	2	6	..	0	0
white .. ,,	2	5	..	0	0	2	5	..	0	0
PRUSSIAN BLUE ...... ,,	1	0	..	1	10	1	0	..	1	10
SALTS—										
Alum ....per ton	150	0	..	155	0	150	0	..	155	0
powder .... ,,	170	0	..	175	0	170	0	..	175	0
Ammonia:										
Carbonate ......per lb.	0	5	..	0	5¼	0	5	..	0	5¼
Hydrochlorate, crude, white........ per ton	420	0	..	500	0	400	0	..	500	0
British (*see* Sal Ammoniac)										
Muriate (*see* Hydrochlorate)										
Sulphate ......per ton	280	0	..	300	0	245	0	..	250	0
Argol, Cape ......per cwt	65	0	..	72	6	67	6	..	80	0
France .... ,,	48	0	..	70	0	53	0	..	75	0
Oporto, red ,,	25	0	..	28	0	30	0	..	0	0
Sicily .... ,,	50	0	..	55	0	65	0	..	70	0
Naples, white ,,	60	0	..	70	0	66	0	..	71	0
Florence, white	75	0	..	80	0	85	0	..	90	0
,, red ,,	65	0	..	70	0	77	0	..	80	0
Bologna, white ,,	78	0	..	80	0	87	0	..	90	0
Ashes (*see* Potash and Soda)										
Bleaching powd..per cwt.	13	6	..	0	0	14	6	..	15	0
Borax, crude .... ,,	35	0	..	50	0	52	6	..	62	6
(Tincal) .. ,,	40	0	..	52	6	47	6	..	60	0
British refnd. ,,	50	0	..	52	6	70	0	..	0	0
Calomel ....per lb.	2	5	..	0	0	2	5	..	0	0
Copper:										
Sulphate ......per cwt.	24	0	..	25	0	25	0	..	26	0
Copperas, green ..per ton	55	0	..	60	0	57	6	..	60	0
Corrosive Sublimate..p.lb.	1	11	..	0	0	1	11	..	1	0
Cr. Tartar, French, p. cwt.	78	0	..	79	0	87	6	..	0	0
Venetian grey ,,	65	0	..	70	0	77	6	..	82	0
brown ,,	55	0	..	60	0	76	0	..	77	6
Epsom Salts ....per cwt.	8	6	..	3	6	8	6	..	9	0
Glauber Salts .... ,,	5	6	..	6	0	5	6	..	6	0
Lime:										
Acetate, white, per cwt.	13	0	..	21	6	10	0	..	18	0
Magnesia:										
Carbonate...... ,,	42	6	..	0	0	42	6	..	45	0
Potash:										
Bichromate ....per lb.	0	5	..	0	0	0	5	..	0	5¼
Carbonate:										
Potashes, Canada, 1st sort ......per cwt.	32	0	..	33	6	35	0	..	0	0
Pearlashes, Canada, 1st sort ......per cwt.	36	0	..	37	0	42	6	..	0	0
Chlorate ....per lb.	1	1	..	1	1½	1	0½	..	1	0¾
Hydriodate (*see* Potassium, Iodide)										
Muriate (*see* Potassium, Chloride)										
Prussiate . ....per lb.	1	0	..	1	0½	1	0¾	..	1	0
red .... ,,	1	9½	..	1	10	1	9½	..	1	10
Tartrate (*see* Argol and Cream of Tartar)										
Potassium:										
Chloride ......per cwt.	8	3	..	8	6	8	0	..	8	0
Iodide.......... per lb.	11	6	..	12	0	12	6	..	0	0
Quinine:										
Sulphate, British, in bottles ...... per oz.	4	3	..	4	6	4	10	..	0	0
Sulphate, French ,,	4	0	..	0	0	4	6	..	0	0
Sal Acetos ....per lb.	0	10½	..	0	0	1	0½	..	0	0
Sal Ammoniac, Brit. cwt.	35	0	..	37	0	34	0	..	36	6
Saltpetre:										
Bengal, 6 per cent. or under ......per cwt.	19	3	..	19	9	18	6	..	19	0
Bengal, over 6 per cent. per cwt.	19	0	..	19	3	18	0	..	18	6
Madras........ ,,	13	0	..	19	0	10	6	..	17	6
	1808.					1867.				
Saltpetre, *continued*:—	s.	d.		s.	d.	s.	d.		s.	d.
Bomb. & Kurrachee p.ct.	15	6	to	19	0	15	0	to	16	0
European...... ,,	21	6	..	22	6	20	0	..	21	0
British, refined ,,	23	0	..	23	0	23	0	..	23	0
Soda:										
Bicarbonate.... ,,	13	6	..	0	0	18	0	..	18	6
Carbonate:										
Soda Ash....per deg.	0	2	..	0	2¼	0	2½	..	0	2
Soda Crystals per ton.	90	0	..	92	6	107	6	..	110	0
Hyposulphite..per cwt.	22	0	..	0	0	20	0	..	0	0
Nitrate .... ,,	13	0	..	13	3	11	6	..	13	0
SUGAR OF LEAD, White, cwt.	37	0	..	37	0	37	0	..	38	0
Brown .... ,,	28	0	..	29	0	29	0	..	30	0
SULPHUR (*see* Brimstone)										
VERDIGRIS .... per lb.	0	11	..	1	0	0	11	..	1	0
VERMILION, English..per lb.	2	9	..	3	1	2	9	..	3	2
China.... ,,	3	0	..	0	0	2	7	..	2	8
DRUGS.										
ALOES, Hepatic....per cwt.	90	0	..	180	0	80	0	..	180	0
Socotrine .. ,,	180	0	..	340	0	180	0	..	300	0
Cape, good.. ,,	30	0	..	32	0	31	0	..	33	0
Inferior ,,	18	0	..	29	0	18	0	..	30	0
Barbadoes ,,	75	0	..	220	0	80	0	..	300	0
AMBERGRIS, grey ....per oz.	32	0	..	35	0	35	0	..	37	0
BALSAMS—										
Canada .... per lb.	1	5	..	0	0	1	2	..	1	3
Capivi .... ,,	1	8	..	1	9	1	10½	..	1	11
Peru .... ,,	9	3	..	0	0	5	9	..	0	0
Tolu .... ,,	2	6	..	2	7	2	6	..	0	0
BARKS—										
Canella alba ....per cwt.	22	0	..	27	0	25	0	..	40	0
Cascarilla........ ,,	23	0	..	35	0	17	0	..	28	0
Peru, crown & grey per lb.	0	10	..	1	10	1	1	..	2	2
Calisaya, flat ,,	2	6	..	2	8	2	6	..	2	10
quill ,,	2	3	..	2	6	1	11	..	2	9
Carthagena ,,	0	9	..	1	3	0	10	..	1	5
Pitayo .... ,,	1	0	..	1	3	0	9	..	2	0
Red .... ,,	1	6	..	6	0	2	6	..	12	0
Bucho Leaves ...... ,,	0	2½	..	0	9	0	3½	..	0	10
CAMPHOR, China.. per cwt.	132	0	..	0	0	127	6	..	130	0
Japan ,,	137	6	..	0	0	120	0	..	0	0
Refin Eng. per lb.	1	10	..	0	0	1	8½	..	0	0
CANTHARIDES ...... ,,	1	10	..	2	1	2	2	..	2	5
CHAMOMILE FLOWERS p. cwt	45	0	..	80	0	50	0	..	120	0
CASTOREUM .... per lb.	5	0	..	32	0	1	0	..	20	0
DRAGON'S BLOOD, reed p. ct.	190	0	..	220	0	200	0	..	240	0
lump ,,	100	0	..	240	0	90	0	..	280	0
FRUITS AND SEEDS (*see also* Seeds *and* Spices)										
Anise, China Star pr cwt.	110	0	..	115	0	115	0	..	120	0
German, &c. ,,	27	0	..	41	0	28	0	..	44	0
Beans, Tonquin .. per lb.	1	0	..	1	6	1	0	..	1	10
Cardamoms, Malabar good ,,	7	3	..	9	0	6	0	..	6	3
inferior ,,	5	3	..	7	1	4	0	..	5	9
Madras ,,	4	6	..	8	0	3	9	..	5	6
Ceylon ,,	2	6	..	3	0	2	6	..	8	9
Corozo Nuts.... per cwt.	12	0	..	19	0	9	0	..	15	0
Cassia Fistula.. ,,	20	0	..	32	0	15	0	..	34	0
Castor Seeds .. ,,	10	0	..	12	0	10	0	..	12	0
Cocculus Indicus ,,	35	0	..	37	0	30	0	..	35	0
Colocynth, apple.. per lb.	0	6½	..	0	10	0	7	..	0	11
Croton Seeds .. per cwt.	100	0	..	115	0	120	0	..	140	0
Cubebs .... ,,	40	0	..	45	0	50	0	..	0	0
Cummin........ ,,	16	0	..	20	0	16	0	..	20	0
Dividivi .... ,,	11	6	..	14	0	12	0	..	13	6
Fenugreek...... ,,	11	0	..	12	0	10	0	..	0	0
Guinea Grains .. ,,	45	0	..	47	0	56	0	..	58	0
Juniper Berries ,,	9	0	..	10	0	8	6	..	10	0
Myrobalans .... ,,	13	6	..	19	0	11	0	..	17	6
Nux Vomica.... ,,	13	0	..	23	6	7	0	..	11	0
Tamarinds, East India ,,	22	0	..	32	6	27	0	..	27	0
West India, new ,,	30	0	..	42	0	12	0	..	19	0
Vanilla, large .... per lb.	9	0	..	14	0	10	0	..	13	0
inferior ,,	4	0	..	3	0	4	0	..	9	0
Wormseed per cwt.	1	6	..	0	0	5	6	..	6	0
GINGER, Preserved, in bond (duty 1d. per lb.) per lb.	0	8½	..	0	10½	1	0	..	1	2
GUMS (*see separate list*)										
HONEY, Narbonne ,,	0	0	..	0	0	50	0	..	70	0
Cuba .... ,,	25	0	..	33	0	26	0	..	41	0
Jamaica.. ,,	22	0	..	43	0	23	0	..	55	0
IPECACUANHA .... ,,	6	6	..	6	9	9	0	..	9	3
ISINGLASS, Brazil.. ,,	2	2	..	3	9	2	0	..	3	10
Tongue sort ,,	2	2	..	4	0	2	6	..	4	4
East India ,,	3	0	..	4	0	1	10	..	4	2
West India ,,	3	6	..	3	10	3	9	..	3	11
Russ. long staple	9	0	..	10	0	9	6	..	10	6
,, leaf ,,	6	0	..	8	9	7	0	..	10	0
,, Simovia	1	6	..	2	6	1	9	..	2	6
JALAP, good ...... ,,	4	3	..	5	0	4	0	..	5	0
infer. & stems ,,	0	9	..	3	10	0	9	..	3	10
LEMON JUICE ... per degree	0	0¾	..	0	0⅞	0	0¾	..	0	0
LIQUORICE, Spanish per cwt.	65	0	..	70	0	65	0	..	75	0
Italian ,,	50	0	..	60	0	50	0	..	70	0
MANNA, flaky .... ,,	3	6	..	0	0	3	6	..	4	0
small...... per lb.	1	10	..	0	0	1	10	..	2	0
MUSK.............. per oz.	19	0	..	33	0	18	0	..	35	0
OILS (*see also separate List*)										
Almond, expressed per lb.	1	10	..	0	0	1	10	..	0	0
Castor, 1st pale .... ,,	0	6½	..	0	6¾	0	6¾	..	0	7½
second .... ,,	0	0	..	0	6¼	0	0¼	..	0	0½
infer. & dark ,,	0	5¼	..	0	5¾	0	5¼	..	0	6
Bombay (in casks)	0	4¾	..	0	0	0	5½	..	0	0
Cod Liver ......per gall.	4	6	..	7	0	4	3	..	6	0
Croton............per oz.	1	2	..	1	6	1	2	..	1	6
Essential Oils:										
Almond ....per lb.	40	0	..	0	0	35	0	..	0	0

	1868.		1867.	
Essential Oils, *continued*:—	s. d.	s. d.	s. d.	s. d.
Aniseed ...... per lb.	8 3	8 6	11 0	11 9
Bay ....per cwt.	80 0	90 0	80 0	90 0
Bergamot ......per lb.	7 6	10 0	12 0	18 0
Cajeput,(in bond) per oz.	0 1¾	0 2	0 2	0 2½
Caraway ....per lb.	5 0	6 6	5 0	6 0
Cassia .... ,,	5 6	5 9	6 0	6 9
Cinnamon ......per oz.	1 0	3 3	1 3	3 6
Cinnamon-leaf .. ,,	0 5	0 7	0 4	0 0
Citronelle ...... ,,	0 2¾	0 3	0 2½	0 0
fine.... ,,	0 3½	0 0	0 4¾	0 6
Clove............per lb.	2 0	0 0	2 7	0 0
Juniper .... ,,	1 9	2 0	1 6	1 9
Lavender........ ,,	2 9	3 9	2 9	3 9
Lemon.......... ,,	4 0	7 6	5 3	0 0
Lemongrass ....per oz.	0 5	0 6	0 8¾	0 0
Neroli .... ,,	3 6	4 6	3 6	4 6
Nutmeg .... ,,	0 3	0 0	0 5	0 7
Orange..........per lb.	5 6	7 0	5 6	7 6
Otto of Roses....per oz.	16 0	26 0	17 0	21 9
Peppermint:				
American ....per lb.	21 6	22 6	22 0	23 6
English ...... ,,	35 0	43 6	33 0	35 0
Rosemary ...... ,,	1 9	2 6	1 9	2 0
Sassafras........ ,,	3 0	3 3	3 0	3 6
Spearmint ...... ,,	16 0	25 0	18 0	30 0
Thyme.......... ,,	1 10	4 6	2 0	4 0
Mace, expressed .. per oz.	0 0¾	0 2½	0 6	0 7
Opium, Turkey ...... ,,	19 6	26 6	15 6	16 6
Egyptian .... ,,	0 0	0 0	3 0	7 0
Quassia(bitter wood) per ton	160 0	165 0	106 0	110 0
Rhubarb, China, good and fine ....per lb.	5 6	8 0	6 0	16 0
Good, mid. to ord. ,,	1 6	5 0	1 9	5 6
Dutch trimmed ,,	10 0	12 6	9 0	10 0
Russian .... ,,	9 0	16 6	6 6	16 0
ROOTS—				
Calumba ....per cwt.	26 0	35 0	35 0	46 6
China .... ,,	36 6	35 6	20 0	30 6
Galangal .... ,,	16 0	17 6	12 6	13 0
Gentian .... ,,	16 0	17 6	16 6	17 0
Hellebore ...... ,,	0 0	0 0	26 6	32 0
Orris............ ,,	86 0	42 0	34 6	35 0
Pellitory .... ,,	58 0	60 6	58 0	66 6
Pink..............per lb.	0 9	0 11	0 0	0 0
Rhatany .... ,,	0 6	0 10	0 7	1 6
Senека............ ,,	1 5	0 6	2 3	0 0
Snake .... ,,	1 9	2 6	3 6	0 0
Saffron, Spanish .. ,,	29 0	33 0	32 0	34 0
Salep ....per cwt.	110 0	0 0	110 0	120 0
Sarsaparilla, Lima per lb.	0 0	0 0	1 0	1 4
Para.............. ,,	0 0	0 0	0 11	1 1
Honduras .... ,,	0 10	1 4	0 10	1 6
Jamaica .... ,,	1 1	2 2	1 0	2 0
Sassafras ....per cwt.	10 0	0 0	8 0	0 0
Scammony, Virgin ..per lb.	23 0	36 0	30 0	40 0
second & ordinary ,,	11 0	23 0	12 0	23 0
Senna, Bombay .... ,,	0 2½	0 4	0 3½	0 4½
Tinnivelly .... ,,	0 2	0 9	0 3	0 9
Alexandria........ ,,	0 5	0 10	0 5	0 10
Spermaceti, refined.. ,,	1 6	0 0	1 2	0 0
American .... ,,	1 5	0 0	1 1	0 0
Squill.............. ,,	0 1	0 2	0 2½	0 3¼

GUMS.

	1868.		1867.	
Ammoniac, drop ..per cwt.	180 0	236 6	186 0	220 0
lump .. ,,	110 0	160 6	100 0	180 0
Animi, fine washed ,,	210 0	230 0	215 0	230 0
bold scraped ,,	190 6	215 0	160 0	210 6
sorts ...... ,,	105 6	185 0	160 6	150 0
dark ...... ,,	70 0	100 0	86 6	105 0
Arabic, E. I., fine pale picked .. ,,	30 6	90 0	90 0	95 6
srts, gd. to fin ,,	60 6	80 6	72 0	82 6
garblings.. ,,	50 0	66 6	62 0	70 0
Turkey, pick. gd to fin. ,,	170 0	210 0	190 6	226 0
second & inf. ,,	85 0	160 0	85 6	170 0
in sorts .. ,,	70 0	85 0	70 0	95 0
Gedda.... ,,	50 0	60 6	64 0	66 0
Barbary, white .. ,,	70 0	75 0	85 0	90 6
brown .. ,,	72 0	75 0	83 0	90 0
Australian ...... ,,	36 0	55 0	70 0	74 6
Assafœtida, com. to gd ,,	55 0	90 0	35 0	95 0
Benjamin, 1st qual. ,,	520 6	660 0	540 0	700 0
2nd ,, ,,	380 0	560 0	266 6	480 0
3rd ,, ,,	110 0	360 0	80 6	320 6
Copal, Angola, red ,,	60 0	70 0	65 0	70 0
Benguela .. ,,	70 0	84 0	62 6	75 6
Sierra Leone..per lb.	0 0½	1 3	0 4½	1 0
Manilla ....per cwt.	27 0	44 6	22 6	45 0
Dammar, pale .... ,,	80 0	90 0	70 0	80 0
Euphorbium ...... ,,	13 0	19 0	20 0	22 0
Galbanum .... ,,	240 0	280 0	240 0	280 0
Gamboge, pckd pipe ,,	340 6	380 0	320 0	400 0
in sorts.. ,,	260 0	320 0	240 6	300 0
Guaiacum ....per lb.	0 6	2 0	0 8	1 10
Kino..............per cwt.	100 0	150 0	280 0	300 0
Kowrie, rough.... ,,	34 0	40 0	25 0	30 0
scraped .. ,,	42 6	75 0	33 0	65 0
Mastic, picked......per lb.	5 0	6 6	5 0	6 0
Myrrh, gd. & fine per cwt.	160 0	200 0	160 0	200 0
sorts...... ,,	100 0	160 0	80 0	140 0
Olibanum, p. sorts ,,	77 0	82 0	70 0	77 6
amber & ylw. ,,	68 0	75 0	62 6	67 6
garblings.... ,,	27 0	45 0	22 0	40 0
Senegal ....per cwt.	80 0	90 0	100 0	115 0
Sandarac .... ,,	82 6	107 6	80 0	107

	1868.		1867.	
Gums, *continued*:—	s. d.	s. d.	s. d.	s. d.
Thus.............. ,,	12 0	0 0	18 0	0 0
Tragacanth, leaf.. ,,	240 0	296 0	220 6	320 0
in sorts ,,	166 6	220 6	80 0	105 0

OILS.

	1868.		1867.	
	£ s.	£ s.	£ s.	£ s.
Seal, pale..........per tun	38 0	0 0	44 10	0 0
yellow to tinged ,,	34 0	36 0	41 0	42 0
brown........ ,,	33 0	0 0	39 0	40 0
Sperm, body ...... ,,	103 0	0 0	115 0	120 0
headmatter ,,	0 0	0 0	112 0	117 6
Cod................ ,,	38 0	39 0	40 0	0 0
Whale, South Sea, pale ,,	36 0	0 0	43 0	0 0
yellow ,,	35 0	0 0	42 0	0 0
brown ,,	34 0	0 0	32 6	0 0
East India, Fish ,,	35 0	0 0	35 0	0 0
Olive, Galipoli ...... ,,	73 0	0 0	63 0	0 0
Trieste ...... ,,	72 0	0 0	61 0	0 0
Levant ...... ,,	67 0	0 0	58 10	0 0
Mogador ...... ,,	66 0	0 0	57 0	0 0
Spanish ...... ,,	69 10	76 10	60 10	61 10
Sicily .... ,,	70 0	0 0	59 10	0 0
Cocoanut, Cochin.. per ton	54 0	0 0	57 10	0 0
Ceylon .. ,,	49 10	50 0	49 10	0 0
Sydney ,,	41 0	49 0	41 0	46 0
Ground Nut and Ginoelly:				
Bombay	50 0	0 0	50 0	0 0
Madras..................	48 0	51 0	54 0	55 0
Palm, fine	40 0	0 0	40 0	41 0
Linseed	32 10	32 15	36 0	0 0
Rapeseed, English, pale ..	36 10	0 0	37 10	38 0
brown........	34 0	34 10	35 5	0 0
Foreign pale....	38 0	38 10	38 10	39 0
brown........	35 6	35 10	36 10	0 0
Cottonseed	31 10	32 10	28 0	34 10
Lard....................	73 0	0 0	64 0	0 0
Tallow	37 0	0 0	36 0	38 0
Petroleum, Crude	11 0	0 0	10 0	0 0
	s. d.	s. d.	s. d.	s. d.
refined, per gall.	1 5	0 0	1 3	1 4
Spirit ,,	0 8	0 10	0 9	1 0

SEEDS.

	1868.		1867.	
	s. d.	s. d.	s. d.	s. d.
Canary ....per qr.	56 0	63 0	38 0	50 0
Caraway, English per cwt.	44 0	46 0	0 0	0 0
German, &c.....	40 0	48 0	40 0	44 6
Coriander	15 0	17 0	18 0	20 0
Hemp ....per qr.	42 0	44 0	44 0	46 0
Linseed, Black Sea & Azof per qr.	63 3	0 0	61 0	0 0
Calcutta ,,	64 3	64 6	65 0	0 0
Bombay ,,	65 0	0 0	67 0	0 0
St. Petrsbrg. ,,	0 0	0 0	0 0	0 0
Mustard, brown.. per bshl.	15 0	16 6	0 0	0 0
white.. ,,	10 0	12 0	0 0	0 0
Poppy, East India per qr,	57 6	0 0	62 0	63 0

SPICES.

	1868.		1867.	
Cassia Lignea ....per cwt.	116 0	123 6	108 6	116 0
Vera .... ,,	56 0	70 0	40 0	60 0
Buds .... ,,	160 6	180 0	146 0	166 0
Cinnamon, Ceylon,				
1st quality ....per lb.	1 11	2 7	1 6	2 9
2nd do. ...... ,,	1 7	2 4	1 2	2 5
3rd do. ...... ,,	1 5	2 2	1 0	2 0
Tellicherry ...... ,,	0 0	0 0	1 6	1 11
Cloves, Penang.... ,,	0 10	0 11¼	0 11	1 1
Amboyna........ ,,	0 4¾	0 5¾	0 5¼	0 5¾
Zanzibar .... ,,	0 3½	0 4	0 3	0 3⅝
Ginger, Jam., fine per cwt.	100 0	150 6	120 0	180 0
Ord. to good .. ,,	40 0	90 0	50 0	110 0
African.......... ,,	29 0	0 0	30 6	0 0
Bengal .... ,,	32 0	32 0	27 0	0 0
Malabar .... ,,	33 0	0 0	26 0	0 0
Cochin .... ,,	40 0	110 0	58 6	120 0
Pepper, Blk. Malabar, per lb.	0 4¼	0 5	0 4	0 4¾
White, Tellicherry ,,	0 9	1 9¼	0 9	1 6
Cayenne .... ,,	0 5½	0 9	0 5	0 9

VARIOUS PRODUCTS.

	1868.		1867.	
COCHINEAL—				
Honduras, black ..per lb.	3 3	4 6	3 2	4 8
,, silver .. ,,	3 1	3 10	3 0	3 8
,, pasty .. ,,	1 9	3 0	2 5	2 11
Mexican, black .... ,,	3 2	3 5	3 4	3 9
,, silver .... ,,	2 10	2 11	3 4	3 5
Teneriffe, black.... ,,	3 2	4 2	3 1	4 0
,, silver.... ,,	2 11	3 7	3 1	3 6
GLUE, Town......per cwt.	40 0	60 0	42 0	62 0
French ...... ,,	52 0	62 0	52 0	64 6
GUANO—				
African, &c.......per ton.	63 16	110 0	70 0	110 0
Peruvian .... ,,	0 0	0 0	240 0	0 0
LAC, Shellac, orange p. cwt.	80 0	95 0	80 0	93 0
Liver & nat. orange ,,	60 0	80 0	57 6	75 0
Garnet............ ,,	57 6	66 0	52 6	60 0
Button, dark to mid. ,,	67 0	97 6	60 0	77 6
Good and fine .. ,,	100 0	127 6	80 0	95 0
Seedlac... ...... ,,	50 0	75 0	70 0	85 0
Sticklac .... ,,	60 0	72 6	35 0	53 0
PUMICE STONE ..per ton	120 0	160 0	100 0	160 0
SOAP, Castile ....per cwt.	38 0	39 0	0 0	0 0
Marseilles.... ,,	40 0	0 0	40 0	42 0
SPONGE, Turk. fin pkd pr lb.	12 0	14 0	12 0	14 0
Fair to good .. ,,	5 0	11 0	5 0	11 0
Ordinary ...... ,,	2 0	4 0	2 0	4 0
Bahama	0 8	1 8	0	1 9